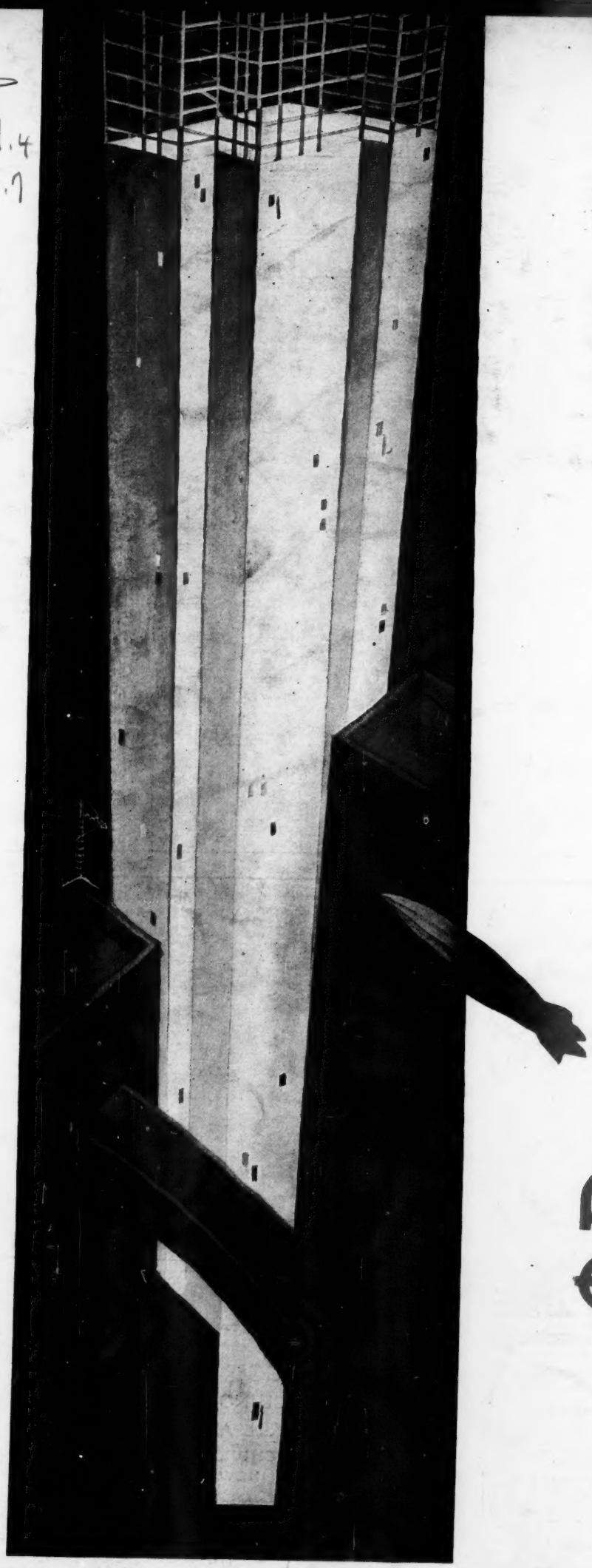
T
L620.5
A513
E
vol. 4
no. 7

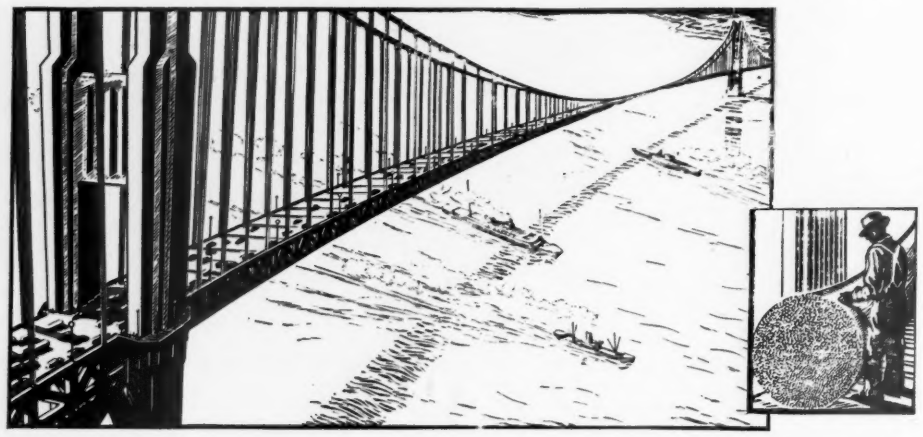


THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

The AMERICAN ENGINEER

JULY-AUGUST - - - 1934

80,000 MILES OF WIRE
in Golden Gate Bridge Cables



The longest single clear span in the world—4200 ft. —now under construction across San Francisco's Golden Gate. ¶ 80,000 miles of Roebling Wire will be used for the two main cables, each measuring 36½ in. in diameter, weighing 11,000 tons and containing 27,572 separate wires. Total load capacity of two cables: 215,000 tons. ¶ ***Designing Engineers:—*** **Strauss Engineering Corporation. Roebling will furnish and erect main cables, suspenders and cable accessories.**

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY

AMERICAN BRIDGE COMPANY
Subsidiary of United States Steel Corporation

FABRICATORS AND ERECTORS OF STRUCTURAL STEEL FOR EVERY PURPOSE

Buildings, Bridges, Towers, Barges, Turntables, Electric Furnaces (HEROULT TYPE)
Eye bars, Buckle plates, Upset rods, Misc. forgings

GENERAL OFFICE—PITTSBURGH, PA. CONTRACTING OFFICES IN LARGER CITIES

Pacific Coast Distributors—Columbia Steel Co., San Francisco Export Distributors—U.S. Steel Products Co., New York

Brown Instruments
"to measure is to economize"

Flow Meters
CO_2 Meters
Hygrometers
Potentiometers
Automatic Controls
Thermometers
Resistance Thermometers
Pressure and Vacuum Gauges

Indicating, Recording, Controlling, Signalling

Write for Catalogues.
THE BROWN INSTRUMENT COMPANY
4451 WAYNE AVENUE, PHILADELPHIA, PA.
Offices in 22 Principal Cities.

T. J. KENNEDY
President

Telephone
COrtland 7-6385

KENNEDY–RIEGGER DRILLING CO., Inc.
CORE DRILLING CONTRACTORS
DIAMOND DRILL AND WASH BORINGS
30 CHURCH STREET
NEW YORK

F. W. RIEGGER, C. E.
Treasurer
Associate Member A. S. C. E.
N. Y. State License No. 668

THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

THE AMERICAN ENGINEER

GRAND CENTRAL TERMINAL, NEW YORK, N. Y. TELEPHONE VANDERBILT 3-9152

ARTHUR V. SHERIDAN, EDITOR

VOLUME 4 JULY-AUGUST, 1934 NUMBER 7

CONTENTS

Page

The New York State Society of Professional Engineers 2
New Jersey Association of Professional Engineers and Land Surveyors

New Society Progresses 3

Engineers of the Next Generation 4
By C. F. HIRSHFELD

Work Relief Plans 5
By FREDERICK I. DANIELS

Is Engineering Overcrowded? 6
By DR. HARVEY DAVIS

The American Civilization 7
By REAR ADMIRAL FREDERIC R. HARRIS, U. S. N., Rtd.

The Code Fades 8

National Society Conference 9

Items of Interest 10
Col. Wm. J. Wilgus Succeeds W. A. Delamater
National Council State Engineering Boards Convention
To The City Engineer

New York and New Jersey News and Activities 11
New Jersey Assn. of Professional Engineers and Land Surveyors
New York Examinations
Chapter News, New York and New Jersey

Licenses Granted 24
Chapter Presidents

Yearly Subscribtion: United States Insular Possessions, Cuba, Canada, Central America, South America and Spain, $2.00; Foreign, $3.00; Single Copy, 20c. Entered as second-class matter July 1, 1931, at the post office at Saugerties, New York, under the Act of March 3, 1879. The American Engineer, is the official publication of the New York State Society of Professional Engineers, Inc., and the New Jersey Association of Engineers. Printing Office: 12 First St., Saugerties, N. Y.

THE NEW YORK STATE SOCIETY OF PROFESSIONAL ENGINEERS, Inc.

Headquarters: Grand Central Terminal, New York

Telephone: VAnderbilt 3-9152

OFFICERS

Vice-President
FREDERIC R. HARRIS
10 East 44th Street
New York, N. Y.

President
ARNOLD G. CHAPMAN
74 Chapel Street
Albany, N. Y.

Vice-President
JOHN CHARLES RIEDEL
505 Macon Street
Brooklyn, N. Y.

Financial Secretary
ERNEST F. FOX
County Building
Bronx, N. Y.

Treasurer
PATRICK M. CORRY
10 East 47th Street
New York, N. Y.

BOARD OF TRUSTEES

ARTHUR V. SHERIDAN
County Building
Bronx, N. Y.

Chairman
DAVID B. STEINMAN
117 Liberty Street
New York, N. Y.

JAMES M. WELSCH
2784 Pond Place
Bronx, N. Y.

DIRECTORS

Homer G. Balcom (a).....10 E. 47th St., New York, N. Y.
Robert J. Bartley (b).....98 Main St., Bay Shore, N. Y.
Francis X. Bode (a).....29 W. Erie St., Albany, N. Y.
George W. Codwise (b).....277 Fair St., Kingston, N. Y.
Thomas C. Desmond (c)...56 Second St., Newburgh, N. Y.
O. A. D'Luhosch (b)....2 Cannon St., Poughkeepsie, N. Y.
S. B. Ehrenrich (c).....50 Kansas Ave., Hornell, N. Y.
Mortimer Y. Ferris (b).....Ticonderoga, N. Y.
William T. Field (c)....40 Flower Bldg., Watertown, N. Y.
Erich Hausmann (a), Polytechnic Institute, Brooklyn, N. Y.
Irving Hochstadter (c)...254 W. 31st St., New York, N. Y.
Jens L. Holst (a)....420 Lexington Ave., New York, N. Y.
Charles S. Keating (c).....400 City Hall, Syracuse, N. Y.
Ralph H. McKee (a), Columbia University, New York, N. Y.
Edgar A. McKenna (c), 8904 247th St., Queens Village, L. I.
Charles W. Marvin (b).....52 City Hall, Rochester, N. Y.
Alfred E. Roche (c).....City Hall, Troy, N. Y.
Charles H. Sells (a)..60 Rebecca Ave., Pleasantville, N. Y.
Raphael J. Smyth (c).....County Bldg., The Bronx, N. Y.
Werner C. Strecker (b), 839 Woodland Ave., Schenectady
Frederick Ward (a).....387 E. 18th St., Brooklyn, N. Y.
Charles R. Waters (a)...546 Delaware Ave., Buffalo, N. Y.
Harold W. Watt (b)....428 S. 6th Ave., Mt. Vernon, N. Y.
F. H. Zurmuhlen (b)....205 E. 42nd St., New York, N. Y.

Terms Expire: (a) 1935; (b) 1936; (c) 1937.

NEW JERSEY ASSOCIATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS

Headquarters: 38 E. Park Street, Newark, N. J.

OFFICERS

Vice-President
MORRIS GOODKIND
State Highway Department
Trenton, N. J.

President
COL. HUGH A. KELLY
Trust Co. of New Jersey Bldg.
Jersey City, N. J.

Vice-President
GEORGE H. F. RANDOLPH
60 Broad Street
Red Bank, N. J.

Secretary
GERALD W. KNIGHT
38 E. Park Street
Newark, N. J.

Treasurer
TREVOR J. POWELL
P. O. Box 212
Elizabeth, N. J.

TRUSTEES

J. H. Phillips .....115 Clifton Ave., Newark, N. J.
Ellsworth Francisco .....City Hall, Newark, N. J.
J. Wallace Higgins .....505 Chestnut St., Roselle, N. J.
Russell S. Wise .....Albion St., Passaic, N. J.
C. George Krugger ....204 Congress St., Jersey City, N. J.
A. R. Johnson...Rutgers University, New Brunswick, N. J.
F. S. Smith.....10 Washington St., Morristown, N. J.
J. W. Seaman.....485 Broadway, Long Branch, N. J.
Paul P. Rice .....Box 22, Phillipsburg, N. J.
Arthur P. Ackerman.....Hackensack Trust Bldg., Hackensack, N. J.
Beale C. Schmucker .....Court House, Camden, N. J.

THE AMERICAN ENGINEER

Published Monthly for

The New York State Society and The New Jersey Association of Professional Engineers

12 First Street, Saugerties, N. Y., and Grand Central Terminal, New York, N. Y.

NUMBER 7 JULY-AUGUST, 1934

NEW SOCIETY PROGRESSES

Comments and Activities Continue

Movement Seen As Opportune

FROM various parts of the country have come reports relevant to the recent formation of the National Society of Professional Engineers. Without exception the reaction has been favorable. Even in states where no license law now exists there appears to be an appreciation of the need for legal control of the practice of the profession, both as a protection to the public and as a means of recognition for the profession. There also appears to be an equal appreciation of the necessity for an organization dedicated to the task of convincing the public mind of the fact that the Engineer is indispensable to modern civilization and that legal recognition and control of engineering as a learned profession are inseparable from the welfare of Society.

The July issue of "Combustion" contains the following editorial which is reprinted with permission:

A National Society For Professional Engineers

"The interests of the engineer are two-fold—technical and professional. The former breaks down into the numerous branches of engineering whereas the latter is a common interest involving professional standing, through licensing, public recognition and advancement in economic status. The technical aspects are being adequately served by the various engineering societies which, also, through cooperative effort, have made a creditable start toward raising and unifying requirements for membership, and in presenting the engineering viewpoint concerning many national and local projects.

There are, however, certain limitations beyond which societies organized along technical lines cannot go, and there are many engineers who believe that experiences of the past three years have shown the need for a united effort to place the professional standing of the engineer on a par with the legal and the medical professions.

With this purpose in view the National Society of Professional Engineers was born on May 25 under the sponsorship of the New York State Society of Professional Engineers in conjunction with similar organizations from seven other states. The objectives are:

1. To advance and protect the interests of the engineer, individually and collectively, through united effort, legislation and public relations.
2. To promote the economic, legislative and social interests of the engineer.
3. To act whenever the interests of the profession can be promoted or are jeopardized.
4. To maintain and strengthen the solidarity of the engineering profession.
5. To strengthen, unify, extend and enforce registration laws and other legislation protecting the practice of engineering and the designation "engineer."
6. To strengthen, coordinate, unify and extend state societies of professional engineers and county chapters.
7. To protect the engineer against exploitation, unprofessional competition, unlawful encroachment and restriction of rights of practice.
8. To wage a militant campaign for more adequate compensation for engineering services.
9. To promote cooperative and fraternal relations.
10. To encourage and guide younger engineers.
11. To improve conditions of employment and methods of engaging engineering services.
12. To extend employment service, and build up a reserve fund for assisting engineers in distress.
13. To represent a united engineering profession in governmental councils.
14. To serve as the voice of the profession where the engineer is especially qualified to supply sound analysis and guide public policy on fundamental questions of national, economic, industrial and social import.
15. To conduct a planned campaign for public recognition of the engineering profession.

Full membership in the National Society will be restricted to professional engineers registered in any state or certified by the National Bureau of Engineering Registration. State and local chapters will not be deprived of their autonomy. It is anticipated that about sixteen hundred members of the American Association of Engineers, which

(*Continued on Page 17*)

Engineers Of The Next Generation

By C. F. Hirshfeld

(Reprinted with permission from June Issue of Electrical Engineering)

THE Engineering profession of today is charged with the education and other preparation of the next generation of engineers. If it does not address itself to this task and with a full realization of its own shortcomings, this next generation will find itself as handicapped as the profession is now. In the Engineer's Council for Professional Development an organization capable of taking the first steps in the desired direction has been created, and it contains the potential power to develop a united engineering profession that knows where it is headed and how to get there. Not that huge affairs can be planned in advance and completely controlled in progress (as is now so commonly believed, possibly in desperation); but, that affairs which are of such small magnitude and are influenced by so few factors that they can be encompassed completely or nearly so by human mentality, are much more likely to maintain an ordered and intelligent course if properly planned in advance and properly supervised later.

A large part of the proposed activities of E. C. P. D. has to do with engineering education in the broadest interpretation of that term. It contemplates a conscious planning and a conscious following of the education of individuals to the end that they may be able best to fill their places in the world. In fact, all else thus far contemplated is nothing more than the setting up of yardsticks to determine the acquisition of such education and the formulation of names and definitions.

The E. C. P. D. is not the end and all, nor is its organization perfect or its program complete and flawless; but it possesses the required potentialities for achieving its aims, and it is capable of functioning advantageously now, while we are engaged in learning from experience where and how it and its program should be changed. The organization of the E. C. P. D. came about largely as a result of recognition on the part of the profession of the following facts:

1. More than half the states in this country have laws for licensing engineers, requiring the establishment and maintenance of state boards to perform the function of licensing, and it is very probable that the other states will enact similiar laws shortly.

2. To be effective these licensing laws must define in some way both the education and other training and the degree of accomplishment required of a candidate for license.

3. Laws already in existence indicate that state licensing boards will adopt lists of accredited engineering schools. In other words, these bodies, which are likely to be more or less political in character in at least some states, will be authorized by law to determine which engineering schools of the nation meet acceptable standards in their respective states.

4. There are wide variations between laws for licensing engineers in the different states. It is a bit disconcerting to discover that a man proclaimed by one state as an individual perfectly competent to practice engineering is, by law, wholly incompetent to practice engineering in another state.

These facts are just as important in connection with engineering education as are the characteristics of electric circuits in certain electrical engineering problems, and they may be expected to modify greatly the profession of engineering as the next generation of engineers will live and practice it. No longer will an individual be free to go his own way in a professional sense. He must meet criteria written into the law of the land; he must conform to certain requirements of the law. In short, whether we like it or not and whether we believe in it or not, the states have come or are coming to the conclusion that the public weal requires the state licensing of engineers and all that it involves; and it involves, among other things, the evaluation of the courses given in our engineering schools.

In accordance with its sovereign rights each state may set the minimum definition of an engineer for its own purposes according to its own discretion. Nothing that any outside body can do, unless our federal government finds new constitutional powers, can force a state to formulate or to adopt a definition not to its own liking. The necessity for professional guidance in the formulation of these laws is obvious.

Medical Profession Sets Example

The engineering profession may profit by the experience and activities of the medical profession which has had this problem before it for many years. That profession long ago adopted a very farsighted policy. Working through a competent and almost militant professional organization, it has molded legislation and the enforcement thereof to the general good of both the profession and the public. As in the medical profession, there are great differences between the different fields of engineering practice; but the success of the national organization in those matters having to do with the educational, legal, and professional aspects of the medical profession should lend encouragement to a somewhat parallel organization movement among engineers.

The engineering profession has recognized differentiation very clearly, in fact too clearly. It

(*Continued on Page 17*)

THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

WORK RELIEF PLANS

By Frederick I. Daniels

Executive Director, T. E. R. A.

(From Address at Conference of New York Mayors)

As a means of visualizing the relief problem of the State of New York, it is necessary to review the costs of relief since this Administration became a partner in the gigantic task in November, 1931.

To June first, 1934, costs for home and work relief alone, from local, state and federal sources, will have approximated $276,000,000. The percentage increase for the five months, as relief is going this year as compared, for example, to 1932, is 117 per cent. The month of June will cost New York State, all sources of funds combined, approximately $28,000,000. Work Relief from November 1931 to June 1934 has absorbed approximately $130,500,000 of the total relief. This is an average of about 47 per cent of the total. In addition, other costs—home relief, administration, materials, transient relief—bring the total up to $287,000,000. Even this is not an accurate picture of the monies used in providing jobs, for municipalities have in almost every instance contributed in money, materials and services, substantial amounts which supplement the above figure.

An illustration of what these figures mean in terms of men and families is the fact that in April, 1933, a total of more than 397,000 families were cared for—245,885 by home relief, at an average monthly relief of $21.50, and 198,787 by work relief, at an average cost of $37.94 per month. In April, 1934, more than 536,500 families were cared for—303,915 by home relief, at an average relief of $28.77 a month and 258,156 by work relief at $47.14 a month.

It is readily seen that work relief has, therefore, cost considerably more per family than has home relief. In addition, however, as mentioned before, we must not forget the additional costs of work relief brought about because of the necessity for materials, equipment and extra personal services. This based, of course, upon sound work relief projects which bring to the community valuable, worthwhile public improvements.

There are other factors which must be taken into consideration in arriving at a fair appraisal of the relative costs of work relief as compared to home relief. Usually the larger families are allowed work rather than home relief; work relief families are generally given more balanced, complete budget allowances—these, among other reasons, plus the natural inclination of most communities to be more liberal in relief when a man is working for it, explain in part the differential in relative costs between the two forms of relief.

The future of work relief is dependent upon two main considerations. First, work relief as a concept and principle as a means of meeting a terrific unemployment problem—as a first line defense in unemployment relief. Second, financial resources adequate to carry out a well balanced, sound, fundamentally worthwhile work relief program. I believe that the answers to both of these questions, and therefore the future of work relief itself, rests in the hands of you gentlemen in this room. It is your voice which will carry more weight than any other voice which may be raised. You are initially charged with a grave responsibility for the care of your needy citizenry; you are in intimate contact with the suffering and misery of your unemployed; you are faced with the task of financing your municipality; you are in close touch with the over-burdened taxpayer. You are, therefore, as the chief executive officer of your municipality, in a dual position which especially qualifies you, through a balanced sympathy, to state to what extent work relief shall be carried on and from whence the funds shall be raised to support such a program.

It is plainly evident that work relief in the future must cost more in materials than it has in the past. New York State, the pioneer in work relief in this country, has been carrying on this form of relief for three years. It is safe to say that, as a state, we have cleaned up completely those projects which provided work with little or no materials cost. We may just as well give up looking for the work project which does not call for materials costs. The leaf-raking, park-grubbing day is past. It has been past for a long time, and one of the criticisms aimed, justifiably, against work relief, has been due to the fact that we have persisted in attempting to make bricks without straw—we have tried to put men to work where there was no work. There is nothing more vicious than this. Such practices are a travesty on work relief. Far better give a man a home relief allowance and let him remain at home than to encourage him to "fool at work," for through such practices we build vicious habits, we kill initiative, we make a cynical mockery of work.

Public officials are cognizant of this factor. Most of you gentlemen have voiced this same feeling. Some of you have faced the issue squarely, and have reshaped your relief program accordingly.

If we are to continue work relief, we must, therefore, prepare to pay the bill. We must work out a program which is possible to cover with funds for labor, materials, equipment and such other costs as are essential in doing a good job. Is such a program in the picture? Can New York State afford such a plan?

We must first answer the question as to whether or not we believe in work relief to the extent of paying for it. The unemployed believe in it—to

(*Continued on Page 19*)

Is Engineering Overcrowded?

By Dr. Harvey N. Davis

(Reprinted with permission from the July Issue of Combustion)

Is engineering overcrowded? Everybody seems to think so, and, of course, at the moment, it is. So is bricklaying, and doctoring and nearly every other occupation or profession. Indeed, at the moment, engineering is probably more overcrowded than are most of the professions. This is because many engineers are normally occupied with designing and making producer's goods. It is well known that in times of severe depression, when the production of consumer goods drops to perhaps three-quarters of normal output, the production of capital goods may drop to even as little as one-tenth of normal output. For this reason, engineers and architects have undoubtedly had a much harder time these last few years than have many other groups, and unemployment is still distressingly common among them. But one must not let temporary conditions warp one's judgment as to permanent trends. The real question is, "Over the working lifetime of a young man now choosing a career, is engineering going to be overcrowded?"

General Rees, Vice-President of the American Telephone and Telegraph Company, put that question to his statistical staff last winter. In answer, they gave him a curve showing how many engineers are being graduated, year by year, from all the schools of the country from about 1920 through 1937. The last four years of this curve are, of course, predictions, but fairly accurate predictions, for we know from experience about how many, each of these groups is going to graduate. So we can draw the curve with some confidence through June 1937. The general trend of the curve is unmistakably upward as is indicated by the trend line which slopes up from a little less than 9,000 graduates in 1921 to nearly 11,000 in 1937.

Fewer Engineers Graduated This Year

This trend line may safely be taken, I think, as a measure of the normal demand for engineering graduates. The curve itself varies, however, above and below its trend line as the years go by. From about 1927 to about 1933 it was above the trend line; that is, we were graduating more engineers perhaps than we should have. This June we shall have graduated, the country over, distinctly fewer engineers than the trend line indicates to be desirable, and in 1935, 1936 and 1937 the number will be markedly below normal. Indeed, in 1937 it looks as if we would be graduating something like 3,500 too few men to match the normal trend; that is, we shall be turning out barely two-thirds as many engineers as we ought to. By 1938, when a young man entering college this coming fall would normally graduate, it seems clear that the accumulated deficiency in engineering graduates will more than equal the accumulated surplus during the preceding period of educational prosperity.

I can defend this statement by quite another sort of evidence. Over a year ago James A. Farrell, then just retiring from the presidency of the United States Steel Company, said to a group of friends that he had no question but that American industry would soon find itself facing the worst shortage of technically trained men it had ever known. He said that this would be true at all occupational levels from machinists and other skilled workmen to research men with doctor's degrees. He said that such a shortage had appeared after every previous depression in industrial history, and that, to the extent that this depression has been severer than usual, the ensuing shortage of technically trained men will be severer than usual also.

At the time, that statement seemed to an engineering educator altogether too good to be true. But as the months have rolled by and I have watched events with that statement vividly in mind, I have become convinced that it is sober fact. Already on the skilled trade level, acute isolated shortages are beginning to appear. On the college graduate level of technically trained men things will undoubtedly work out rather differently in detail. We shall have no similar acute little shortages in isolated specialties here and there, for one of the essential differences between college trained men and skilled artisans is the greatly superior versatility and adaptiveness which a broad engineering training produces. If there is a special demand for any particular kind of engineer, there are always plenty of men in a wide variety of related specialties who can become competent in the desired field almost over night. Among college trained technical men the impending general shortage will come, not as a succession of acute shortages in specialties, but rather as a gradual and largely unperceived re-absorption into industry of the whole floating supply of men of a given age and experience level. The change from a buyer's to a seller's market for engineering services is likely to come rather suddenly, and perhaps unexpectedly, when it comes.

And yet, already occasional straws are showing which way the wind is blowing. For instance, nearly three-quarters of last year's graduating class at Stevens now have jobs, a record that would have delighted any college administrator's heart a year or two ago. More and more I am convinced that Dr. Farrell was right when he said, fifteen months ago, that American industry is soon going to have to face a severe shortage of technically trained men.

Field of Engineering Broadening

I have still a third reason for believing that engineering is not going to be overcrowded during the quarter century that lies ahead. It is that the scope and range of the engineering field is

(*Continued on Page 19*)

THE AMERICAN CIVILIZATION

By Rear Admiral Frederic R. Harris, U. S. N., Rtd.

(Address delivered under auspices of National Crusaders, Inc., over National Broadcasting System)

WHY has man made such progress in the last one hundred years? Known history of man extends back over six thousand years. For most of that time, in material things, in his spiritual value as an individual, with personal rights and freedom of action, he made no definite or lasting progress.

Why in this comparatively brief interval of human history has mankind jumped from stagnation to mastery of his surroundings? For thousands of years the horse, the sail and rowboat were his sole means of communication, and personally he was fettered by caste, tradition and custom. Here and there the light of personal and intellectual freedom flickered—blazed up for a brief spell, but it always went out, leaving the world again in darkness. Why have we in this one hundred years jumped from these primitive conditions to the railroad, the electric locomotive, the automobile, the airplane? Jumped from the pony express and courier to the telephone, the wireless and radio? Why have we in this brief time suddenly envisioned human beings having sacred rights to life, liberty and the pursuit of happiness? Why do we accept as just and natural the doctrine that wealth should be more evenly distributed, or insist on a high standard of living under which the poorest of our people may be secured adequate food, shelter, education, protection in infancy and old age?

One hundred and fifty years ago, there was born into the family of nations a new group, formed of thirteen struggling Colonies. From an Anglo-Saxon freeman ancestry we inherited an understanding and a craving for personal liberty, freedom of speech, and some inkling of the sacredness of individuality, and the justice of equality of opportunity. The birth of this new child among nations was considered a menace to the established forms of government-monarchies. It was viewed with suspicion and fear. A Republic, based on a Democracy, which, by a universal franchise, was to place the real power in the people themselves was too idealistic and too experimental.

Nevertheless, this new experiment in social organization created a new civilization—"The American Civilization"—and much of the accelerated progress of the entire world and its family of nations in the last one hundred years has come about through out leadership. History some day will recognize this period as that of "The American Civilization."

Anthropologists—those who devote themselves to the science of man—will tell you that there is little difference in the brain capacity between the most backward and most advanced races. Human beings, by reason of their background—each and every one of us—is a mixture of the traits of millions of dead and gone ancestors. And so, every child born into the world—even of the poorest and most illiterate parentage has within it the possibility—given opportunity—of developing into a leader in art, science, government, or invention.

Biologists will tell you that a "sport" is one of a new generation that suddenly develops unusual traits. Mankind has its "sports"—sometimes degenerates or criminals, happily also sometimes geniuses, leaders, and creators of new things which uplift and advance the condition and happiness of the human family. Such were the Aristotles, Gallileos and Newtons, and the Hamiltons, Lincolns and even Henry Fords of our own day.

There is a sameness to the human family, and we Americans are of the same stock as our European ancestors, and we cannot explain by mere geography, climate, or natural resources our unprecedented growth into the greatest, wealthiest, and most liberal nation the world has ever known. How then can we explain what some call "Yankee inventiveness"?, "American tempo"?

Within our boundary lines there are one hundred and twenty-five million people—one-fifteenth of the people of the world, but here every child born enters the world with the door of opportunity wide open, is given the chance to learn, think, and how to express its thoughts. Under our Constitution, laws, and their guarantees for the enjoyment of life, liberty, and the pursuit of happiness, it may, within bounds, freely work and strive to express its inborn individuality of thought and action. Every biological human "sport" who is born under the "American flag" has a chance to grow and blossom out into a shining, irridescent flower of genius.

The bulk of humanity does its daily tasks, engrossed in the routine of living. It is to the few that is given that celestial spark that brings into the world new ideas, new devices, new points of view. The Beethovens of music; the Michael Angelos of art; the Shakespeares of literature. When you open wide the door of opportunity to the children of your whole population you multiply your chances of national progress.

In Czarist Russia, perhaps not over two per cent of the population—the children of the aristocracy had such an opportunity. In pre-war Germany, only a small proportion of their population—the aristocracy—could command in their Army, and they produced no Napoleons in war leadership. The American Democracy, through its constitutional guarantees of liberty, freedom of thought and speech, universal education and the "door of opportunity wide open," has outstripped the rest of the world, because every biological human "sport" has had the chance and has taken advantage of it. That is why we lead. Other nations have had their great and contributed to human advances. How much would they have contributed

(*Continued on Page 20*)

THE CODE FADES

American Institute of Consulting Engineers Registers Opposition

Poll of Members Prompts Action

AT its annual meeting, held on May 26th, 1934, the New York State Society expressed itself as definitely opposed to the coding of Engineers. This Society, the first to withdraw from participation in the Code deliberations of the Committee appointed by the American Society, did so because of the persistent use of its name in connection with the various unsatisfactory drafts submitted at Washington. Some two months later the American Institute of Consulting Engineers, another participant in the deliberations of the Committee, also recorded itself as opposed to the coding of Engineers.

The failure of the American Society of Civil Engineers to respect the wishes of the profession, and not those of a small group, is unhappily responsible for the miscarriage of a laudable endeavor.

The opportunity for unifying the profession was never before so seemingly apparent. To have written a Code applicable to all Engineers was not a difficult task, if the said Code pertained to Engineers as professional men and not as employers or employees. Such a Code, which would have been in effect a Code of Ethics, of which the profession as a whole stands in need, would have served as a basis of common aspiration and common responsibility for those who scientifically employ the laws, forces and materials of nature for the welfare of mankind.

That the authorities at Washington or the Construction Industry League, to whose kite the Engineer was tailed, would not have accepted such a Code was of little import, for the obvious reason that the Engineer does not need a business Code and is better uncoded than divided to serve special interests.

The following resolution indicates how justified the New York State Society, which has invariably expressed the wishes of its members as a whole, was in withdrawing last fall from further participation in Code deliberations:

Resolution Adopted At Meeting of Executive Committee
American Institute of Consulting Engineers
July 17, 1934

"Whereas, the Council of the American Institute of Consulting Engineers, starting June 22, 1934, has conducted a canvass of the membership to determine the present opinions of the individual members on the proposed Code for the Engineering Division of the Construction Industry;

Whereas, a large majority of the replies to this canvass record opposition to the Code and to the coding of engineers;

Whereas, the Council believes that the American Institute of Consulting Engineers is more fairly representative of the engineers who are intended to be bound by the Code under consideration than is the American Society of Civil Engineers because the Institute is the only national organization of engineers which is composed of employer engineers, because its members are engaged in practicing engineering only and are not engaged in contracting, and because 90% of the members of the Institute of Consulting Engineers are also members of the American Society of Civil Engineers and are representative of that small proportion of the A. S. C. E. who are not employees, and whose major interest is not contracting.

And Whereas, the National Industrial Recovery Act exempted the professions, and the President's recent proclamation exempted services, from the Code provisions:

Now therefore, be it Resolved:

That the Council of the American Institute of Consulting Engineers, protests against the adoption of a code for professional engineers and urges the amendment of Capter I of the Code of Fair Competition for the Construction Industry so as to exclude "designing" from the definition of the "construction industry" in Article II, Section I and so as to exclude "engineers" in the definition of "members of the industry" in Article II, Section 3.

And be it further Resolved:

That a copy of this resolution be forwarded to the Administrator of the National Industrial Recovery Act with the Council's thanks for the consideration given to President Burpee's request that action on the Code be delayed until the results of the Institute's canvass could be known; and with the further information that the objections to the Code expressed by members of the Institute are so numerous and varied that they are difficult to summarize, but that the members for the most part believe:

That the purposes of the NRA would not be furthered in any way by the coding of engineers but that this coding might on the contrary have an adverse effect on general recovery; that minimum wages and maximum hours requirements admittedly do not apply to those engaged in professional work; that personal character and professional ability, and not dollar and cents, must always be the principal basis of competition in engineering services, and the exemption of professions from coding in the NRA, and the recent exemption of services by the President, are sound and to the best interests of the country; that if the engineering profession is coded its dignity and standing will be impaired by its classification as a trade or industry, and its professional pride a quality which is vital and important to the ethical practice of all professions, will be damaged; that the majority of engineers definitely do not want a code; that the cleavage which a code must necessarily produce between employers and employees, a cleavage which has heretofore been absent, would be harm-

(*Continued on Page 20*)

THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

NATIONAL SOCIETY CONFERENCE

New York, September 3rd

Constitution for Adoption

THE next meeting of accredited representatives of State Societies will take place in New York on September 3rd next.

In choosing the location, Washington, Philadelphia and New York were presented for approval of participating organizations. The results were 6½ for New York, 2 for Washington and ½ for Philadelphia.

At the meeting, the proposed Constitution will be presented for approval. The Committee, headed by Prof. John C. Riedel, has submitted the result of its endeavors.

Immediately upon receipt of the draft, copies were forwarded to all committeemen and other interested persons for recommendations. Several minor changes have since been incorporated as a result of the replies received. The document is concise and has been highly commended by practically all who have perused it to date.

The corrected draft as of August 8th follows, together with a membership inquiry form forwarded to eligible organizations:

PROPOSED CONSTITUTION OF THE
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Preamble—Recognizing that service to Society, to State, and to Profession is the premise upon which individual opportunity must be builded, the National Society of Professional Engineers does herewith dedicate itself to the promotion and protection of the profession of engineering as a social and economic influence vital to the affairs of men and of these United States.

Name—The name of this organization shall be the National Society of Professional Engineers.

Objects—The objects of this organization shall be to represent the united engineering profession on a national scale; to advance and protect the common welfare and the economic and professional interests of the engineer through united effort, legislation, and public relations; to unite, coordinate and extend the activities of State Societies of Professional Engineers and their local Chapters.

Headquarters—The main offices of this Society shall be located at Washington, D. C., or such other place as may be designated by the Board of Directors.

Membership—The membership shall be limited to legally registered or licensed professional engineers. Professional Engineers residing in States not yet having registration laws must secure legal registration in another state or certification by the National Bureau of Engineering Registration as a prerequisite for membership in the National Society.

Member State Societies—For eligibility each Member State Society must have the major portion of its membership limited to legally registered professional engineers. The remainder of the membership of each Member State Society shall have no voice in the affairs of the National Society and shall not be included in the number determining the extent of representation on the Board of Directors. A minimum of ten registered professional engineers shall be required for the formation and chartering of a Member State Society. Any State Society, approved by the Board of Directors as qualifying under this Constitution, will become a Member State Society upon written acceptance of this Constitution.

Reciprocal Relationship—In any state having a Member State Society, every registered professional engineer who is a member of such Member State Society will automatically become a member of the National Society, and no resident can join or retain membership in the National Society except through membership in such Member State Society.

Officers—The officers of the National Society shall be a President, two (2) Vice-Presidents, a Treasurer and a salaried Executive Secretary, who shall each perform the duties usually pertaining to the respective offices.

Board of Directors—The Board of Directors shall consist of the officers of the National Society, and of one representative from each Member State Society who shall be named annually by the said State Society. Each member of the Board of Directors shall have one vote except that each State Society representative shall have one vote for each 1,000 legally registered professional engineers or fraction thereof who are members of the State Society. The Board of Directors shall meet on call of the President to determine questions of policy.

Nominations—Nominations for officers shall be made by a committee of five, who shall be elected annually.

Elections—Elections of officers and members of the Nominating Committee shall be made annually by plurality vote on individual letter ballots sent to all members of the National Society.

Committees—The Committees of the National Society shall be, Executive, Legislative, Public Relations, Professional Relations, Publication, Membership, and any special committees. All committees shall be appointed by the President and shall perform such duties as may be assigned by him.

Conventions—A convention shall be held annually at such time and place as may be selected by the Executive Committee.

Dues—The dues for membership in the National Society for each professional engineer member of a Member State Society shall be four dollars per

(*Continued on Page 21*)

ITEMS OF INTEREST

News, Reports, Comments

In Prose and Verse

COL. WILLIAM J. WILGUS SUCCEEDS COL. WALTER A. DELAMATER AS WORKS DIRECTOR FOR THE CITY OF NEW YORK

The following article is reprinted from the New York Times of August 13th:

DELAMATER QUITS AS WORKS DIRECTOR

Colonel William J. Wilgus to Succeed Him in Post in Welfare Department.

The resignation of Colonel Walter A. De Lamater as director of the works division in charge of the employment of some 130,000 persons on work relief was made known yesterday by Commissioner William Hodson of the Department of Public Welfare.

As chairman of the City Emergency Relief Bureau, Mr. Hodson accepted Colonel De Lamater's resignation "with real regret" to enable Mr. De Lamater to return to private business.

Colonel William J. Wilgus, an engineer of international note, has been named to succeed Colonel De Lamater, whose resignation becomes effective Sept. 1.

Colonel De Lamater was appointed director after the death of Travis H. Whitney seven months ago. He will assist Colonel Wilgus when the latter takes over the office and will cooperate with Mr. Hodson and the relief administration when needed.

Colonel Wilgus has been engaged in constructive and engineering projects of international note. Outstanding among his achievements was the direction of electrification of the New York Central Railroad in the New York City region.

Born in Buffalo on Nov. 20, 1865, Colonel Wilgus studied civil engineering in that city and went to the New York Central in 1893. He conceived the Grand Central Terminal and plans for it were prepared under his direction. In February, 1903, he became vice president of the New York Central in charge of construction and in 1908 entered private practice.

Colonel Wilgus was one of the first five Americans to enter service during the World War and his special duty was the planning and supervising of the flow of men and munitions toward the front over the European railroads. He was cited for distinguished service by General Pershing and later was similarly honored by Governor Roosevelt in behalf of the State Legislature.

As chairman of the Board of Consulting Engineers he, with his colleagues, passed upon the plans for design, construction and operation of the Holland Vehicular Tunnel. Colonel Wilgus was consulted on the Regional Plan of New York and its environs.

Colonel Wilgus was a member of

(Continued on Page 15)

NATIONAL COUNCIL STATE ENGINEERING BOARDS — 15th CONVENTION

Portland, Oregon, October 3rd

The fifteenth Annual Meeting of the National Council of State Boards of Engineering Examiners will take place in Portland, Oregon, on October 3rd, 4th, 5th, and 6th.

Following is a copy of the official announcement:

INVITATION: Those receiving this Convention Announcement, who are not officially appointed delegates, are to consider this as a personal invitation.

PLACE: Portland, Oregon. The Hotel Multnomah has been selected as convention headquarters. Reservation card showing rates is enclosed, which you should mail direct to the hotel when making your reservation.

DATE: October 3, 4, 5, and 6, 1934.

TRANSPORTATION: Special railroad summer excursion rates to Portland and return, limited to October 31, will be available. The following fares are given for your information; one-way pullman fare from Chicago to Portland is $15.75 additional. Lynchburg, Va., $113.00; Indianapolis, Ind., $92.60; Milwaukee, Wis., $86.00; Little Rock, Ark., $92.65; Harrisburg, Pa., $118.15; Knoxville, Tenn., $108.55; Jacksonville, Fla., $127.25; New Orleans, La., $104.50; Jackson, Miss., $99.30; New York, $126.90; Columbus, Ohio, $100.10; Chicago, Ill., $86.00; Raleigh, N. C., $118.65; Columbia, S. C., $123.25.

A special pullman car will be arranged for delegates on the PORTLAND ROSE operating via C & N W. UNION PACIFIC, leaving Chicago September 30, at 10:15 p. m., leaving Omaha, Neb., October 1 at 10:05 a. m., leaving Cheyenne, Wyo., October 1 at 8 p. m., leaving Boise, Idaho, October 2 at 3:55 p. m., arriving Portland, Oregon on October 3 at 7:35 a. m. Those wishing to make reservations on special car may do so through local railway agents or with Mr. A G. Bloom, general agent, passenger department, Union Pacific System, 6 South La Salle Street, Chicago.

PROGRAM The attached program shows hours of business meetings and entertainment features. Business to be transacted will include reports of the following Standing Committees: Accredited Enginering Schools; Uniform Examinations for Registration; Legal; National Bureau of Engineering Registration; Engineers' Council for Professional Developments; and Constitution. Mr. F. D. Weber, who is President of the Oregon State Board is Chairman of the Convention Committee.

It is important that the names of

(Continued on Page 15)

TO THE CITY ENGINEER

By Arthur Guiterman

I don't know who you are whose praise I weave in
My dithyrambic symphony of song;
Unseen, you're something that I *must* believe in,
For, lacking you, we could not get along.

You know our city's wondrous inner being,
The multifarious conducts underground,
The hidden works that are not meant for seeing,
The ganglia that make our wheels go round.

If you were slightly autobiographic,
I'd know a little more than I have guessed
About your ways of regulating traffic,
Our bridges, aqueducts and all the rest.

But, as it is, I'll have to be contented
With what I see and what I take on trust;
If you were *not*, you'd have to be invented,
For, oh, what prodigies your hands adjust!

You know our river tubes, our subway tunnels,
The deep cloacal arteries you know;
You rule the buried streams and tinkling runnels
That keep their ancient courses far below.

The pipes for water, gas and steam—the tangles
Of wires for telegraph and telephone
Why, every time the bell beside me jangles
I wonder when you call an hour your own.

And when among the dark internal mazes
There's something wrong, you send those aides of yours,
Those specialists who use no Latin phrases
And yet achieve such complicated cures.

When something breaks, they come and tear the road up,
They plug, they patch, they bind. those learned men,
And when the job is done and deftly sewed up,
The invalid is quite himself again.

What's that? A drill that grinds without cessation?
Another saving miracle is due?
The patient needs another operation?
Good by! I won't be back until you're through!

NEW YORK AND NEW JERSEY NEWS AND ACTIVITIES

NEW JERSEY ASSOCIATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS

Notice to All Members, Guests and Friends

Annual Outing and Clam Bake Frolic at the Seaside

Hosts: Monmouth County Chapter

This annual affair, usually a feature of the Monmouth County Chapter, is to be expanded under State Association auspices, to provide entertainment and a social get-together of all State Chapters.

The date: Saturday, September 8th, all day.

The cost: $2.50 (Children under 14, half price).

The place: Shark River Hills Hotel and grounds. (2 miles south of Asbury Park).

Hire a bus and come down as a crowd! Bring the family, old and young. All day affair. Let's make the event a great success.

Golf and Tennis Tournaments for the athletes. Morning 10:00 (Four prizes). Morning 10:00 o'clock. Swimming, Boating, Fishing, Baseball Horseshoe Pitching.

Sun baths, bridge, board walk and promenade for the ladies.

Refreshments (You know what I mean).

A committee has arranged for Chautauquan Games, under the direction of a special instructor, besides bathing, see-saw and swings for the children and Oh, Boy! 10 acts by special entertainers. Music.

Special dressing rooms for golfers and bathers. No extra charges except for green fees. (Special low rates). All for Two Dollars and a Half. Children under 14, half price.

The committee requests your prompt cooperation in sending in your reservations. Mail your check to Leo Mc Kee, Chairman not later than September 1st. Tickets will be mailed back promptly. Chapter Secretaries are to make special arrangements for busses or group transportation. Entries for Golf and Tennis Tournaments must be in Committees hands not later than September 3rd. Give Club Handicaps. Golfers are hereby notified to report and register at the hotel and secure tickets before play.

Tear off slip below and mail with check or money order to Leo McKee, 16 McLaren Street, Red Bank, N. J.

A special business meeting will be held at 4 o'clock, limited to one hour.

LEO F. MCKEE,
16 McLaren Street,
Red Bank, N. J.

Please reserve.....dinner tickets for which I enclose$..... I will play (golf), (tennis).
My handicap is.....
Signed: .....
.....

NEW YORK EXAMINATIONS

June 25th-29th

For Professional Engineer

Part I
MATHEMATICS

Monday, June 25, 1934—9:15 a. m. to 12:15 p. m. only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 From the end of a tangent 20 inches long a secant is drawn through the center of the circle. If the external segment of this secant is 8 inches, find the radius of the circle.

2 Expand $(a^{1}/_{2}\, b^{-1}/_{3} + a^{-1}/_{2}\, b^{1}/_{3})^{7}$

3 The perimeter of an equilateral triangle is 17.2 feet; find the area of the inscribed circle.

4 The equation of a chord of the circle $x^2 + y^2 = 25$ is $y = 2x + 11$; find the length of the chord.

5-6 The altitude of a variable cylinder is constantly equal to the diameter of the base. When the altitude equals 6 feet, it is increasing at the rate of 2 feet an hour. (*a*) How fast is the volume of the cylinder increasing? (*b*) How fast is the entire surface of the cylinder increasing?

7 Determine the value of the definite integral $\int_0^a \frac{dx}{\sqrt{a^2 - x^2}}$

8 Prove that the diameter of a circle circumscribed about a triangle is equal to any side of the triangle divided by the sine of the angle opposite.

9 The height of a regular hexagonal pyramid is 36 feet and one side of the base is 6 feet. What are the dimensions of a similar pyramid whose volume is one-twentieth that of the first pyramid?

10 A grass plot 9 yards long and 6 yards broad has a path around it. The area of the path is equal to that of the plot. Determine the width of the path.

11 The first term of a geometric series is 3, the last term is 192 and the sum of the series is 381. Find the number of terms and the ratio.

12 What sum of money will amount to $1,763.50 in 3 years at 5% compound interest, the interest being compounded semi-annually?

Part I
APPLIED SCIENCES

Monday, June 25, 1934—1:15 to 4:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 A one-cylinder, double-acting steam engine has a piston diameter of 8 inches and a stroke of 12 inches. The mean effective steam pressure is 60

(*Continued on Page 21*)

CHAPTER NEWS

STEUBEN AREA

The midsummer meeting of the Steuben Area Chapter was held on Tuesday, August 7th, at the Baron Steuben Hotel, Corning, N. Y.

The following press report from the "Evening Leader" indicates the interest which the Chapter has aroused.

ENGINEERS HEAR INTERESTING TALK ON EARTHQUAKES

Large Number of Professional Engineers at Mid-Summer Dinner Meeting at Hotel Here; Dr. A. L. Day Speaker.

VISIT LOCAL FACTORIES.

Tell of Construction of Buildings for Protection Against Earthquake Shocks; Appointment of Investigator Talked.

A resume of the destruction caused by earthquake in California in the past 27 years and steps which are being taken to protect buildings from further shocks was related by Dr. A. L. Day, director of the Geophysical Laboratory in Washington, D. C., in a highly interesting speech before approximately 75 members and friends of the Steuben Area Chapter of the New York State Society of Professional Engineers, Inc., at the mid-summer meeting at the Baron Steuben Hotel Tuesday evening.

Showing slide photos of the earthquake of 1906 in San Francisco and 1933 in Long Beach, Cal., Dr. Day illustrated his interesting talk and held the attention of the large group during the enjoyable session. It was one of the largest meetings of the Steuben Area Chapter in many months.

Those who were seated at the speakers' table were: W. O. Drake, Robert H. Canfield, Herman F. Eilers of Corning, Dr. A. L. Day of Washington, D. C., S. B. Ehrenrich of Hornell, M. W. Wipfler of Elmira, O. J. Dempster of Hornell and Alfred Vaksdal of Corning.

Prior to the dinner meeting members of the Chapter of the Southern Tier and their wives visited Corning Glass Works, Ingersoll-Rand plant at Painted Post and the T. G. Hawkes Company. Appreciation for the enjoyable time which was shown the members was expressed during the meeting.

At the outset of the talk, Dr. Day outlined the recent movement of the Public Works Administration to aid California in protecting its inhabitants and buildings from further destruction of earthquakes. He stated that in 1906, San Francisco was visited by "what residents called a fire. Water and gas mains were broken and buildings destroyed. The casual visitor might think that something unusual had happened.

"It was fully 20 years later that serious consideration was given to earth-

quake conditions and intensive efforts were made to study the cause of the shocks. Following the earthquakes of 1925 in San Barbara and 1933 in Long Beach it was proposed by officials of the west coast that the government assist in the movement to protect buildings."

The speaker then outlined the manner in which earthquakes are recorded on seismographs and studies which are made of the instrument to obtain the movements of the earth when shocks are taking place. He stated that at the Washington observatory approximately 100 earthquakes are recorded a month but the majority have no major effect.

x x x x x x x x x x

To show the movements of the earth during a shock, Dr. Day displayed slide photos of the earthquakes which caused the destruction. He said that the safety committee in Los Angeles is attempting to reduce brick structures in the area due to the fact that from past experiences show these buildings are greatly effected than others. At the present time he said no good method has been devised to care for buildings already constructed.

Immediately after the interesting speech Dr. Day left for Washington.

During the business meeting of the Chapter which followed the dinner session, S. B. Ehrenrich, president, was authorized to recommend to the state presidene the oppointment of an investigator from the local chapter. Mr. Ehrenrich stated that six investigators are to be appointed in the state to enforce the law which provides that all employed engineers must have a state license. He said the Steuben Chapter had an excellent opportunity of securing the appointment of an investigator for the Southern Tier.

Robert H. Canfield, first city engineer of Corning, was introduced during the evening by Herman F. Eilers. secretary of the Chapter, as one of the oldest engineers of the state. The next meeting of the Chapter will be held in Elmira on September 11.

* * *

BROOME AREA

At a dinner meeting held June 12th at the American Legion Club House in Binghamton, N. Y., forty-two members and guests were present.

Mr. Frederick H. Zurmuhlen, Director of the State Society and President of the Richmond County Chapter addressed the meeting. He told about the need, growth and aims of the society after which a round table discussion took place. The members were much pleased with the manner in which Mr. Zurmuhlen handled his subject.

* * *

ERIE AND NIAGARA COUNTIES

The following press report of a combined meeting of the Niagara and Erie Chapters indicates the significance of the well organized local unit.

From the Niagara Falls Gazette of July 14th, 1934.

PLANS FOR ORGANIZATION OF NEW ENGINEERING SOCIETY EXPLAINED

Members of Niagara and Erie County Engineering Bodies Entertain State Boards of Examiners at Luncheon Here.

The plans for the organization of a new national society of professional engineers were explained to 45 members of the Niagara and Erie county chapters of the New York State Society of Professional Engineers at a joint meeting held at the Cataract House yesterday afternoon by Dr. David B. Steinman, New York City, chairman of the state board of examiners of professional engineers and land surveyors. The meeting was held in honor of the members of the state board, who closed one of their annual two-day meetings here yesterday.

The new national society, which will be known as the National Society of Professional Engineers, will be inaugurated next January 1, Dr. Steinman said, for the purpose of furthering the economic interests of engineers and for general civic betterment. The present state and county chapter set up will be continued in its present form, the speaker explained, and the national society will concern itself principally with national aspects of the engineering profession and with the extension of licensing systems in states where there are no systems at present.

The meeting was opened yesterday by A. L. Williams, Sr., this city, president of the Niagara county chapter of the society, who acted as toastmaster. Mr. Williams introduced first Albert H. Hooker, Lewiston, former chairman of the state board and "dean" of that body. Mr. Hooker said that there was no need in explaining the functions of the licensing board to a group of engineers, all of whom have been licensed by it.

After Dr. Steinman had talked, Charles B. Heisler, Albany, state director of licensure, was introduced. He promised the full cooperation of the state education department with the engineering society and said that the department really means to enforce all provisions of the licensing law.

A new system will be introduced shortly, Mr. Heisler said, whereby the state society will designate engineers in various areas to act as special deputies of the education department in enforcing the licensing laws. Most of the work will continue to be carried on by his department, he said, but whenever necessary the remainder will be turned over to these special deputies to investigate and handle. Complaints will continue to be handled through Albany, he said, but these will be adjusted as quickly as possible.

Other speakers included Virgil M. Palmer, Rochester, and Eric Hausmann, Brooklyn, members of the state board of examiners; Fletcher H. Burke Buffalo, secretary of the Erie county chapter of the society; Charles Marvin, Rochester, president of the Monroe county chapter; Richard B. Lyon, Jamestown, secretary of the Chautauqua-Cattaraugus county chapter of the society; T. N. McCormick, Buffalo, president of the Erie county chapter, and Roy G. Finch, Albany, secretary of the board of examiners and secretary of the New York State Board of Regents.

In some remarks delivered shortly before adjournment, Dr. Steinman declared that the state society, as an organization, had already declared itself opposed to giving membership to sub-professional men or unlicensed engineers. An attempt will be made to organize them as the New York State Society of Engineering Affiliates, to give them training until the time they are licensed and eligible for the general society.

Only licensed professional engineers are eligible for the state society Dr. Steinman said, and only these will be admitted to the new national organization. No technical discussions will be taken up at the meetings of the society, the time being used entirely in furthering the interests of properly prepared and licensed engineers, he said.

The state board meets in Niagara Falls at least once every year. During its monthly meetings, it reviews and passes upon applications for licenses and handles similar business relating to the profession."

The meeting which was an afternoon gathering was preceded by a luncheon at the Cataract House in Niagara Falls.

A joint Committee consisting of Messrs. Henry S. Steele, H. Wesley Clark and George W. Stone of Niagara County and Messrs. Stewart S. Neff, Fletcher H. Burke and Charles R. Waters of Erie County, was in charge of the arrangements.

* * *

AUGUST MEETING (Erie)

From Fletcher Burke comes the following report of a luncheon meeting held August 14th, by the Erie County Chapter.

"Mr. Arthur S. Tuttle, Chief Engineer of P. W. A. projects in the State, who was honor guest at a luncheon meeting held at the Buffalo Athletic Club on Tuesday, August 14th, was in Buffalo on a two-day official visit.

"Mr. Fred H. Zurmuhlen, Assistant Engineer, P. W. A., Mr. George J. Summers, Commissioner of Public Works of Buffalo, Mr. Daniel G. McNeil, Architect of the Department of Public Instruction of Buffalo, and about twenty members of the Erie County Chapter were present.

"The luncheon was quite informal, it being the intent of the Chapter to pay its respects to Mr. Tuttle and at the same time afford him a pleasant respite from his strenuous official schedule."

* * *

CHAUTAUQUA-CATTARAUGUS COUNTIES

The Chapter held its July meeting at Olean on Wednesday evening, July 1th. While this was not a regular meeting, as the Constitution and By-Laws specifies a vacation period in the summer, interest prompted a decision to hold sessions in July and August.

The July meeting proved very suc-

cessful. Fourteen members and guests met at Gargoyle Park Club House. The Olean members provided a well planned lunch.

The business of the evening centered around violations of the State License Law. Two cases were reported on as having applied for the required license while the third, dealing with a TERA project, required further investigation.

The Chapter Secretary, R. B. Lyon, was appointed to represent the Chapter at a joint meeting of Erie and Niagara Counties. This meeting at Niagara Falls proved interesting and profitable. The Committee in charge of arrangements is to be congratulated for a fine program and a splendid gathering of engineers.

The Chapter held its August meeting at Midway Park on Chautauqua Lake, on Saturday afternoon, August 11th. A picnic attended by the families and friends of members proved most enjoyable.

* * *

KINGS COUNTY

On the occasion of its June meeting the Chapter was the guest of the Brooklyn Union Gas Company.

Following are excerpts from the report of the Secretary:

The Brooklyn Union Gas Company had as its guests the Kings County Chapter of the New York State Society of Professional Engineers and its guests during the afternoon and evening of June 21, 1934, at their Gas Service Station in Brooklyn. There were over one hundred present.

From the time of the arrival of the engineers and others, there was never an idle moment.

Mr. C. E. Paige, Vice President of the Brooklyn Union Gas Company, opened the activities with a reception to the guests and in his own convincing manner heartily welcomed them and gave a brief description of the plant and its functions. He stated the remodeling of the buildings of this plant was due in no small measure to the efforts of Mr. L. S. Stiles, Construction Engineer, and his organization.

Groups of eight to ten were taken about the plant by an able and versatile guide. The various operations and functions of the various departments were fully explained. In the large parking space there was a motor vehicle exhibit carrying the most modern equipment, namely a purging machine patented by one of the younger engineers of the gas company, and a member of Kings County Chapter, Mr. A. D. Harrison. This purging machine from the viewpoint of positive safety of life and limb is an indispensable piece of equipment that should be universally used in gas companies and oil companies, etc. This piece of machinery can be readily purchased.

There was demonstrated a van with an elevator tailboard which is a labor saving device for bringing heavy parts of gas appliances, gas refrigerators, gas ranges, etc., from the floor of the truck to the street or any platform level. This device is also an invention of one of the gas company's employees.

Following the touring of the plant, a baseball game between two of the leading teams of the Brooklyn Union Gas Club League was played. This was a most interesting game and only was decided when the last man was out, the score being 2-1.

After the baseball game, the Arrangement Committee called the engineers and others to the dining room where they sat down to a most excellent dinner. Upon being seated, Mr. L. S. Stiles, President of the Kings County Chapter, called the meeting to order, this being the date for the regular meeting. The reading of the minutes of the preceding meeting and the business end of the meeting was dispensed with upon motion. The meeting being closed, Mr. F. C. Weber, Vice President of the Brooklyn Union Gas Company, was called upon to address his guests. He welcomed all and also thanked the engineers for their presence and expressed his appreciation and the Company's appreciation of the services of the engineer.

Following is the letter of appreciation from Mr. J. C. Riedel to the Gas Company prior to adjournment:

June 22, 1934

Brooklyn Union Gas Co.,
176 Remsen Street,
Brooklyn, N. Y.

Attention of Mr. C. E. Paige, Vice President.

Gentlemen:—

The Kings County Chapter of the New York State Society of Professional Engineers wishes to express to your officers and employees full appreciation of the very great courtesy extended the members of the Chapter when they visited your plant at Flatbush yesterday afternoon and evening and were your guests at the inspection, at the festivities and at dinner. The members of the Chapter little dreamed that there existed in Brooklyn so modern and well equipped a plant as yours proved to be. We, of course, were generally familiar with the production of gas and its distribution to customers but it was not generally known that the departments having contact with the public had been developed to so high a degree of usefulness and efficiency.

The Chapter by a unanimous vote at the dinner meeting expressed its thanks to you as our host and especially to Mr. Paige, Mr. Weber and Mr. Perry, as well as the members of the Reception Committee, for the excellence of the arrangements and for your liberal hospitality. We congratulate you upon having a real Institution in Brooklyn and not merely a gas supplying company. As Mr. Stiles, our Chapter President, is your Construction Engineer, and to relieve him of the embarrassment of sending this letter to you, I cheerfully and with complete personal satisfaction act in his place as Vice President of the Chapter and send these words of appreciation to you.

Yours very sincerely,

(sgd.) J. C. Reidel, Kings County Chapter,
Vice President

BRONX COUNTY

The regular monthly meeting of Bronx County Chapter, held at the Concourse Plaza Hotel on June 7, 1934 was attended by considerably more than one hundred members and guests. Among these were representatives and delegations from the leading Civic, Real Estate, and Building Organizations in the County. In an attempt to foster interest in Civic Betterment, Bronx County Chapter had extended to these organizations the opportunity to attend this meeting and be addressed by Dr. Furia and Professor Costa, both of Manhattan College, who collaborated in presenting a talk on slum clearance. The scheme presented was for pre-fabricated multiple dwellings to be assembled on landscaped garden plots. It was contended by the Lecturers that such buildings could be rented at a price per room which would permit their occupancy by the inhabitants of the slum buildings to be replaced. It was their contention that all propositions so far advanced called for rentals which were so high that they would force the present occupants to move into other districts, thereby merely relocating the slum instead of clearing it. After the talk a general and at times heated discussion on the technical, economical, and social features of the plan was participated in by members and guests.

The announcement of the death of Mr. John D. Sherry, on May 9th, 1934, was received with deep regret. Mr. Sherry was a member of the Engineering staff of the President of the Borough of the Bronx. He had been active in Bronx County Chapter practically from its inception.

In view of the fact that the New York State Society had decided against the adoption of any Code, Bronx County Chapter discharged its Code Committee. This Committee, under the Chairmanship of Mr. Raphael J. Smyth, had given unsparingly of its time and energy and it was with a deep sense of appreciation that Bronx Chapter voted its discharge with thanks.

President Joseph F. Lamb announced the apointment of a Special Committee to investigate the status of engineers employed by the City of New York. The personnel of the Committee is as follows: Theodore Rosen, Chairman; Henry Greenberg, Thomas Normile, Joseph A. Brunner, and Edmund Britten.

Mr. Raymond J. Van Wagner, Chairman of the Chapter activities Committee reported that the annual outing of Bronx County Chapter would be held on August 28, 1934, at Milton Point Casino, Rye, Westchester Co., New York. Milton Point Casino is a private beach club where facilities for bathing, tennis, dancing and other forms of amusement, are of the best. This will be the third consecutive year in which these privileges have been available to Bronx County Chapter. Members and guests look forward eagerly to its annual recurrence.

R. C. Sullivan,
Secretary

SUFFOLK COUNTY

Forty-five members and guests of the Suffolk County Chapter, New York State Society of Professional Engineers, met at the Montauk-Downs Golf Club, Montauk Point, recently. Fred J. Biele of Huntington, presided.

The day's program started with a golf tournament in the afternoon, followed by a sword-fish dinner and a business meeting in the evening. John T. O'Brien of Huntington, turned in the low score for the guests in the golf tournament.

Director George Haag, of Islip, reported on the recent meeting of the State Society of Professional Engineers in New York. A Committee was appointed to study the matter of the proposed diversion of State Highway funds derived from automobile license fees. The use of these funds for purposes other than highway construction and maintainance has caused much unemployment among Engineers.

The attendance at the meeting broke the five year record, in spite of the distance which most of the members had to travel.

Thomas E. Ringood, of Montauk, a Director of the Chapter, and Chief Engineer of the Montauk Beach Developement Corp., was Chairman of the Committee of Arrangements.

A silent tribute was paid to Albert O. Smith, former County Superintendent of Highways, Vice President of the Chapter, who passed away suddenly as the result of a stroke two weeks ago. The public esteem in which Mr. Smith was held both as an official and as an Engineer is indicated in the following press notice and editorial:

A. O. SMITH DIES; COUNTY ROAD HEAD FOR OVER 20 YEARS

Funeral Services Held Tuesday, With Many Prominent County, Town Officials There.

June 30, 1934 — Albert Orange Smith, county superintendent of highways, for more than 20 years, died suddenly Saturday evening of a heart attack at his home on 205 Oak St,. Port Jefferson, at the age of 57. Funeral services were held at his late home on Tuesday afternoon, the Rev. George J. Reister, pastor of the First Presbyterian Church, officiating, and interment followed in the family plot in Cedar Hill cemetery, where a Masonic service was conducted at the graveside.

Born in West Hartford, Vermont, on Aug. 4, 1877. Mr. Smith earned his civil engineering degree at the University of Vermont and entered the engineering profession for himself at Greenport in 1906. Three years later the Republican majority on the Board of Supervisors named him as county superintendent of highways, which position he held until 1914. In 1918 Mr. Smith was again named for that post serving until a month ago. He was directly responsible during his regime for construction of over 200 miles of concrete road. He had 2,500 miles of highway under his direct supervision.

Mr. Smith retired on a pension on May 31, when his term expired and the Democratic majority on the Board of Supervisors named Herman F. Bishop of Westhampton Beach to succeed him. It was under Mr. Smith's administration that the county engineer's office was first brought to Port Jefferson, where it has remained ever since.

Mr. Smith only recently said that he was too young to retire from active life. His death came as a shock to the whole county. He sustained a sudden heart attack, and members of the family summoned Dr. F. L. Mc Crea and Dr. James H. MacIvor, but a subsequent attack resulted in his death. Surviving are his mother, Mrs. Isabella D. Smith, of Barre, Vermont, and two daughters, Miss Eleanor F. Smith and Miss Ruth C. Smith, of Port Jefferson. His wife died a year and a half ago.

For more than 20 years Mr. Smith was clerk of the Board of Education. He was a past master of Port Jefferson Lodge, F. & A. M., former president of the Suffolk County Association of Highways Superintendents, which he had also served as vice president; a member of the American Society of Civil Engineers and the Professional Engineers' Society. He was a member of the First Presbyterian Church of Port Jefferson.

AN ENDURING MONUMENT

No man could have a more enduring or impressive monument to recall his achievements and keep alive his name than Albert O. Smith, retired highway superintendent of Suffolk County, who died at his home in Port Jefferson on Saturday. Many miles of paved highways and scores of bridges and canals testify to the genius of the man who played so important a role in the developement of Eastern Long Island and contributed so substantially to its prosperity and well-being.

Mr. Smith's sudden and untimely death came exactly a month after the day he relinquished the office he had held for twenty one years, the last sixteen consecutively. Many will wonder if severance from the work to which he devoted himself for so long a time hastened his death. All his life as one of his close associates said, he had been too busy to be sick. Only too often, medical authorities agree, retirement brings death to men whose active minds cannot stand the shock of inactivity which follows an abrupt divorce from a life-long occupation.

By his retirement, Suffolk lost one of its most conscientious and able public servants. In his death, the community loses a valuable citizen and the engineering profession one of its foremost members.

The publishers and editors of this newspaper join with Mr. Smith's thousands of friends throughout the county in expressing sympathy to the bereaved family.

The Board of Directors selected Charles W. Baird of Southampton to serve as Vice President for the balance of the year.

The next meeting will be held on Friday, September 14th, the place to be announced later.

CAPTAIN STRECKER CITED
Commands Outstanding CCC Company

A citation worthy of note has come to Captain Werner C. Strecker, a director of the Society. Following is an evidence of the engineers' ability to organize and direct.

HEADQUARTERS, 2ND (N. Y.) DISTRICT, CCC

August 7, 1934.

Subject: Designation of Outstanding Company.

To: Commanding Officer and Members of Company 211, CCC Camp No. 51, Deposit, New York.

1. The Commanding Officer, CCC District No. 2 (N. Y.), takes pleasure in announcing to you that your Company has been selected as the outstanding Company of this District in consideration for the Army and Navy Journal award for the Third Period, April 1 to September 30, 1934.

2. In making this selection the following subjects were considered:

a. Leadership and Initiative.

(1) General appearance of camp area.

(2) General appearance of buliding interiors.

(3) Improvement work on camp site.

(4) Improvement or refinement of camp facilities.

b. Camp Administration and Operation.

(1) Number of hearings.

(2) Number of discharges by hearings.

(3) Number of desertions.

(4) Value of surveys on property.

(5) Value of "ration savings fund."

(6) Value of "other funds."

(7) Value of Camp Exchange Sales and Dividends.

(8) General conduct of Administrative Paper Work.

c. Work for Technical Services.

(1) Record of cooperation of the camp personnel with Forestry personnel.

(2) Percentage of man-days of labor for the Forestry service from the available strength.

3. The District Commander commends the Commanding Officer, the officers and the members of Company 211, whose attention to duty and spirit of cooperation have contributed to the excellence standard which has been attained at Camp 51, and feels certain that this same high standard will always be maintained.

RAYMOND W. BRIGGS,
Colonel, 5th F. A.
Commanding.

The Camps that comprise the 2nd District are the following:

No. 3, McDonough; No. 28, Chenango Forks; No. 30, Gilbert Lake; No. 36, Pharsalia; No. 37, Sherburne; No. 51, Deposit; No. 62, Benson Mines; No. 69, Brasher Falls; No. 70, Oswegatchie; No. 71, Brookfield; No. 80, Masonville.

THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

NEW YORK STATE SOCIETY COMMITTEES

Personnel for 1934-1935

President Chapman has announced the following Committee appointments:

MEMBERSHIP

Fred H. Zurmuhlen, Chairman, 205 E. 42nd St., New York, N. Y.; O. A. D'Luhosch, 2 Cannon St., Poughkeepsie, N. Y.; M. Y. Ferris, Ticonderoga, N. Y.; J. L. Holst, Rm. 825, 420 Lexington Ave., N. Y. City; Frank X. Bode, Dept. Pub. Wks., Albany, N. Y.; Edgar A. McKenna, 8904 247th St., Queens Village, L. I.; W. C. Strecker, C. C. C. No. 51, Deposit, N. Y.; S. B. Ehrenrich, 50 Kansas Ave., Hornell, N. Y.

PUBLICITY

A. E. Roche, Chairman, City Hall, Troy, N. Y.; R. J. Smyth, 1625 Undercliff Ave., Bronx, N. Y.; Irving Hochstadter, 254 W. 31st St., New York, N. Y.; Erich Hausmann, Polytechnic Institute, Brooklyn, N. Y.; George W. Codwise, 277 Fair St., Kingtson, N. Y.

LEGISLATIVE & GRIEVANCE

J. C. Riedel, Chairman, 505 Macon St., Brooklyn, N. Y.; F. R. Harris, 10 E. 44th St., New York, N. Y.; Ralph H. McKee, Columbia University, New York, N. Y.; Wm. T. Field, 40 Flower Bldg., Watertown, N. Y.; Chas. H. Sells, 60 Rebecca Ave., Pleasantville N. Y.; Robert J. Bartley, 98 E. Main St., Bay Shore, N. Y.; Thomas C. Desmond, 56 2nd St., Newburgh, N. Y.; Chas. R. Waters, 546 Delaware Ave., Buffalo, N. Y.

ETHICS & PROFESSIONAL PRACTICE

D. B. Steinman, Chairman, 117 Liberty St., New York, N. Y.; H. G. Balcom, 10 E. 47th St., New York, N. Y.; H. W. Watt, 428 S. 6th Ave., Mt. Vernon, N. Y.; C. S. Keating, 400 City Hall, Syracuse, N. Y.; Frederick Ward 287 E. 18th St., Brooklyn, N. Y.; Chas. W. Marvin, 52 City Hall, Rochester, N. Y.

* * *

NEW JERSEY ASSOCIATION

Standing Committees 1934-1935

ETHICS COMMITTEE

Frederick O. Runyon, Chairman; Ronald Brown, Beale M. Schmucker, Claire E. Tilton, Ernest F. Weeks.

LEGISLATIVE COMMITTEE

J. L. Bauer, Chairman; Russell S. Wise, George W. Andress, Louis P. Booz, L. N. Whitcraft, Victor Gelineau.

BUDGET COMMITTEE

Chester A. Slocum, Chairman; N. C. Harrison, Peter F. Daly, Ernest F. Weeks, Edward S. Rankin, Beale M. Schmucker, George F. Rich, Perley E. Boomer, Louis P. Booz, R. P. McClave.

PROSECUTIONS COMMITTEE

Henry J. Sherman, Chairman; A. R. Johnson, James O. G. Gibbons, Robert L. Hatfield, John L. Miller.

PUBLICITY COMMITTEE

Vincent J. Scanlan, Chairman; Creighton D. Bickley, Mahlon O. Parsons, Gerald W. Knight, John L. Hodges.

NOMINATING COMMITTEE

C. Campbell Hunicke, Chairman; Vincent J. Scanlan, Robert O. Bentley, Peter F. Daly, Beale M. Schmucker.

MEMBERSHIP COMMITTEE

Robert O. Bentley, Chairman; Frederick J. Wright, Asher Atkinson, Frederick W. Loede, Herbert W. Heilmann, G. Russell Hartley, George R. Merrill, Malcome E. Runyon, J. H. Eaton, Spencer C. Hamilton, W. D. Willegerod, Leo K. McKee, Frank J. Oleri, Raymond F. Leuthy, Harry T. Greene, Foster F. Vogt, Winfield Hopkins, Ray C. Buckley, John L. Miller, J. L. Bauer, Claire E. Tilton, James Logan, Thomas J. Daley, Paul P. Rice.

* * *

Items of Interest

COL. WILGUS SUCCEEDS COL. DELAMATER

(*Continued from Page 10*)

the Art Commission of New York City under the chairmanship of Robert W. de Forest. He has honorary degrees of Doctor of Engineering from Stevens Institute of Technology and the University of Vermont. He is author of numerous papers on engineering and other subjects and of "Transporting the A. E. F. in Western Europe," a book recently published by the Columbia University Press.

* * *

NATIONAL COUNCIL STATE ENGINEERING BOARDS

(*Continued from Page 10*)

all delegates of State Boards be furnished as soon as available to the National Council Secretary.

T. Keith Legare
Executive Secretary

August 1, 1934.

* * *

CONVENTION PROGRAM

Wednesday, October 3, 1934

2:00 p. m.—Conference on National Society of Professional Engineers.

8:00 p. m.—Meeting of Board of Directors, N. C. S. B. E. E.

Thursday, October 4, 1934

9:30 a. m.—Registration of delegates and guests.

10:00 a. m.—Business Session (see note).

12:30 p. m. Lunch.

2:00 p. m.—Card Party for Ladies. (Sponsored by A. S. C. E. Women)

2:00 p. m.—Business Session (See note)

4:00 p. m.—Committee Meetings.

7:00 p. m. Annual dinner (formal).

Friday, October 5, 1934

9:30 a. m.—Business Session (see note).

12:30 p. m. Lunch.

2:00 p. m.—Business Session (see note).

4:00 p. m. Adjournment.

4:00 p. m.—Meeting of Board of Directors, N. C. S. B. E. E.

8:00 p. m.—Theatre Party for Ladies

Saturday, October 6, 1934.

9:00 a. m.—Sightseeing trip—St. Johns Bridge over Williamette River, Bonneville Dam, and Columbia River Highway.

5:00 p. m.—Return to Hotel Multnomah.

NOTE: The Order of Business as given on page 136 of the 1933 Proceedings will be followed at business sessions. All sessions are open to the public.

PUBLIC WORKS AND THE CONSTRUCTION INDUSTRY AS A CAREER

New York University Offers Course

The College of Engineering at New York University announces a new curriculum in the senior civil engineering year, designed to train especially for a career in public works and the construction industry. The Civil engineer has always supplied the greatest number of technically trained men to the public service, and during the course of the depression it has become clear that planned public works activities must increasingly be relied upon as a regulator of unemployment, a balance wheel for industry, business, and the public welfare.

In planning, execution, and administration of large public works and construction projects the civil engineer is taking an increasingly important place. The oportunities for civil engineers particularly trained in the broader aspects of these activities has caused the College of Engineering to introduce a Public Works and Construction Option in the senior civil engineering year. In connection with this option, believed to be the first of its kind in this country, some of the more highly specialized subjects ordinarily given in the senior year will be condensed or omitted to make room for five new courses. These are (1) engineering economics and finance; (2) contractors organization and equipment; (3) construction codes and labor problems; (4) industrial organization; and (5) public works organization and administration.

These new courses will cover the broad economic and social principles on which public works should be based, and describe the practical aspects of their organization and functioning. The relation of the civil engineer to the construction industry will be stressed. These courses for the present will be open only to those seniors having honor grades during their three previous years. The new courses will to a large extent be given as coordinated lectures by prominent practicing engineers, economists and public officials who have interested themselves in the objects of this undertaking.

A New era is upon us; an epoch of different concepts of the relation of public to private activity; a time in which public works as planned, constructed and administered by the civil engineer has become part of an emergency program widely accepted and likely to continue in modified form as a permanent national policy. The construction codes are designed to create a better integrated and well organized construction industry. These developements, regarded as permanent in principle, though likely to change in form, offer new and challenging opportunities and responsibilities to the civil engineer. The new public works option is designed to train young engineers to meet this challenge and to prepare for more definite careers in public works and related activities than has been possible heretofore.

A partial list of special lectures is attached.

LECTURES IN PUBLIC WORKS COURSES

George Armstrong, Industrial and Financial Consultant, formerly Vice-President, National City Company.

Dr. Frederick L. Bird, Director of Municipal Research, Dun and Bradstreet, Inc.

Col. C. H. Birdseye, Engineering Assistant to the Director and Chief of the Engraving and Map Division, U. S. Geological Survey. Formerly, President, Aerotopograph Corporation of America.

Robert W. Boyd, Engineer, Turner Construction Company.

W. W. Brush, Chief Engineer, Bureau of Water Supply, Gas, and Electricity of New York City; Chairman National Recovery Committee; American Water Works Association.

Dr. Morris L. Cooke, Consulting Engineer, Chairman, Mississippi Valley Committee, P. W. A.

David C. Cole, Consulting Engineer Expert on Wind Bracing of Tall Buildings, Member, Technical Board of Review, P. W. A.

J. W. Follin, Secretary, Construction Code Authority.

Dr. Russell Forbes, Commissioner of Purchase, New York City.

Col. John P. Hogan, Consulting Engineer, Member of firm of Parsons, Klapp, Brinckerhoff and Douglas, Consultant on many large power projects. Vice Chairman, Construction Code Authority.

Dr. S. L. Land, Educational Director, National Association of Heating, Piping and Air Conditioning Contractors.

Frederick H. MacDonald, Consulting Engineer and Financial Adviser. Secretary, Engineering Economics and Finance Division, American Society of Civil Engineers.

Malcolm Pirnie, Consulting Engineer, Formerly Deputy Adminstrator, NRA Member, Engineering Board of Review, P. W. A.

Carlton S. Proctor, Consulting Engineer. Consultant on San Francisco Bridge, Conowingo Dam and many large structures in this country and abroad. Chairman, Professional Engineers' Code Committee.

Leonard Schultze, Architect and Builder, Designer of many large structures in New York City and elsewhere.

Charles U. Upham, Director, American Road Builders' Association, Formerly Chief Engineer, North Carolina Highway Dept., Consulting Highway Engineer.

Daniel T. Webster, Marc Eidlitz and Son, Contractors, Chairman, Building Contractors' Code Committee. Secretary, Metropolitan Builders' Association.

Willard T. Chevalier, Vice President, McGraw Hill Publishing Co., 330 West 32nd St., New York, N. Y.

C. A. Holmquist, Director Division of Sanitation, State Dept. of Health, Albany, N. Y.

F. E. Green, Superintendent of Water Works, State Dept. of Public Works, Albany, N. Y.

A. I. E. E. ELECTS OFFICERS

Fourteen States and Canada Represented at Summer Meeting.

Mr. J. Allen Johnson, Chief Electrical Engineer, Buffalo, Niagara & Eastern Power Corp., Buffalo, N. Y., was elected president of the American Institute of Electrical Engineers for the year beginning August 1, 1934, as announced at the annual meeting of the institute held at Hot Springs, Va., during the annual summer convention of the Institute. The other officers elected were: Vice-Presidents W. H. Timbie, Cambridge, Mass., R. H. Tapscott, New York, N. Y., G. G. Post, Milwaukee, Wis., F. J. Meyer, Oklahoma City, Okla., F. O. McMillan, Corvallis, Ore.,—Directors F. Malcolm Farmer, New York, N. Y., N. E. Funk, Philadelphia, Pa., H. B. Gear, Chicago, Ill.,—National Treasurer, W. I. Slichter (re-elected), New York, N. Y.

These officers together with the following hold-over officers will constitute the Board of Directors for the next administrative year, beginning August 1, 1934: J. B. Whitehead (retiring president, Baltimore, Md., H. P. Charlesworth, New York, N. Y., R. B. Bonney, Denver, Colo. F. M. Craft, Atlanta, Ga., A. H. Hull, Toronto, Ont., R. W. Sorenson, Pasadena, Calif., A. M. Wilson, Cincinnati, Ohio, L. W. Chubb, East Pittsburg, Pa., B. D. Hull, Dallas, Tex., P. B. Juhnke, Chicago, Ill., G. A. Kositzky, Cleveland, Ohio, Everett S. Lee, Schenectady, N. Y., A. H. Lovell, Ann Arbor, Mich., L. W. W. Morrow, New York, N. Y., A. C. Stevens, Schenectady, N. Y., H. R. Woodrow, Brooklyn, N. Y.

The annual report of the Board of Directors, presented at the meeting showed a total membership on April 30, 1934, of 15,230. In addition to two national conventions and one District meeting, 1,487 meetings were held during the year by the local organizations of the Institute in the principal cities and educational institutions in the United States, Canada, and Mexico.

* * *

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Nominations for 1935

Nominations for Officers of The American Society of Mechanical Engineers for 1935 were announced at a recent meeting of the Nominating Committee held at Denver, Colo., during the Semi-Annual Meeting. Election will be held by letter ballot of the entire membership, closing on September 25th., 1934.

The nominees as presented by the Regular Nominating Committee of the Society are:

President—R. E. Flanders, President Jones & Lamsen Machine Co., Springfield, Vt.

Vice-Presidents—E. W. O'Brien, Editor So. Power Journal, W. R. C. Smith Publishing Co., 1020 Grant Bldg., Atlanta, Ga.

Jas. H. Herron, President Jas H. Herron Co., 1360 West 3rd. St., Cleveland, Ohio.

H. R. Westcott, President Westcott & Mapes, Inc., 139 Orange St., New Haven, Conn.

Managers—B. M. Brigman, Dean Speed Scientific School, University of Louisville University, Campus, Louisville, Ky.

Alfred Iddles, Vice-President United Engr. & Constrs. Inc., 1401 Arch St., Philadelphia, Pa.

J. W. Haney, Professor University of Nebraska, Lincoln, Nebr.

* * *

NEW JERSEY BROCHURE

Issued Jointly by State Board and State Association

An eighty-two page booklet has just been released by the New Jersey State Board of Professional Engineers and Land Surveyors and the New Jersey Association of Professional Engineers.

The contents include:

1. Officers of the State Association with Trustees and Chapter Secretaries.
2. "The Engineer" by Dr. D. B. Steinman.
3. Information concerning the Engineers' Licensing Law of the State of New Jersey.
4. Incumbents of the Present Licensing Board.
5. By-Laws of the Association, as amended.
6. "Engineers of the Next Generation" Excerpts of the paper by E. F. Hirshfeld.
7. The Engineers' Code. Introduction and Excerpts from.
8. Salaries—Metropolitan Regional Committee on Engineers' Employment and Salaries.
9. New Jersey State Association Standing Committee.
10. 1934 Chapter information.
11. The National Society, Prefatory Note, Excerpts from the Minutes and Draft of the Proposed Constitution.
12. Roster of Licensed Engineers.

A forward states:

This booklet has been prepared for the benefit of the Professional Engineers of the State, both as individuals and as members of an age-old profession. To some its information will be trite and fulsome; to others, whose concern for the future welfare of the profession is not so great, the subject matter will have less appeal. Its best appraisal will be found in its usefulness to the established practitioner as a handbook of reference and in its service to the young man coming on.

In these days of change and adjustment to a new order of things, in which even the farmer through his A. A. A. is taking an interest in organization and organized methods for his protection and benefit, it should be realized by the members of the engineering profession that their best gain for recognition and preferment lies in organization—National, State and County; and that while our various units of organization are far from being perfect, only by their support can they be made so. At the moment what we have is the best we have. Any improvement must come through the sustained interest of the men who have taken, continue to take and will take their living out of engineering. The paper prepared by Mr. Hirshfeld, excerpts from which are found herein, is commended to your thoughtful reading.

The publication contains much valuable information, some of which will appear in a later issue of the American Engineer.

CONNECTICUT REPORTS
On National Society Possibilities

From Willard S. Conlon comes the following interesting and encouraging communication addressed to Mr. T. Keith Legare, of South Carolina, who is Chairman of the Membership Committee of the new National Society of Professional Engineers.

"CONNECTICUT CONFERENCE OF PROFESSIONAL ENGINEERS
State Representative of the National Society of Professional Engineers
Temporary Headquarters
c/o W. S. Conlon
City Engineer
Stamford, Conn.
August 14, 1934

Mr. T. Keith Legare, Chairman
Membership Committee, NSPE,
1226 Sumpter Street,
Columbia, S. C.

Dear Mr. Legare:

I am attaching herewith the questionnaire received from you on July 25, filled in.

Attached to same you will please find a statement showing the status of Engineers in Engineering Societies in the State of Connecticut. I think that we can count on a membership of approximately 2,000 for the State of Connecticut, as the estimated figures contained herein are very conservative.

The figures indicating the various classification of membership from Honorary to Affiliate show the actual membership in these various Societies. We estimate that there are approximately 300 Engineers in the State of Connecticut who are not members of any Society and who would be qualified for membership in the National Society.

I trust that this information will be of service to the Membership Committee. Very truly yours,

WILLARD S. CONLON,
City Engineer."

AMERICAN ASSOCIATION OF ENGINEERS
Asks Correction of Minutes National Society Conference

At the request of Mr. Donal L. Chamberlin, President of the American Association of Engineers, the following correction to the minutes of the conference of organizations of professional Engineers, held in New York, May 25th, 1934, is made to the published account of the said meeting which appeared in the June issue of the American Engineer:

Paragraph 6 is amended to read as follows:

To their clear and convincing pleas for organized national unity, Mr. Donal L. Chamberlin, President of the A. A. E., proposed the complete cooperation of the A. A. E. in joining the new National Organization, provided a workable plan of organization could be drafted that would be acceptable to the A. A. E. He stated that he felt that every organization that gives consideration to consolidation with the new organization should view this question from an unselfish standpoint bearing in mind that it will be necessary for each organization to give up something which they now have for the benefit of the greatest number.

* * *

NEW SOCIETY PROGRESSES

(Continued from Page 3)

at one time actively pursued some of these objectives but which has been less active in recent years, will qualify for membership in the new Society. It is expected that the organization will be completed and in full swing by the first of the year with headquarters in Washington, D. C.

While some of the proposed activities of the National Society of Professional Engineers will parallel existing activities of the Founder Engineering Societies it is believed that the efforts can be coordinated so as to avoid duplication."

The Engineering News-Record and other publications, as well as the press generally, have carried items or articles which suggest the importance of the movement to coalesce the social, economic and professional programs of professional engineering bodies throughout the country.

Under the inspiring direction of Dr. D. B. Steinman the various committees have completed their preliminary work and the report of each is ready for presentation.

As is noted elsewhere in this issue, a conference to consider the proposed Constitution and to perfect the organization will take place in New York on Labor Day, September 3rd. Nothing could better attest to the zeal of those engaged in the endeavor to launch the Society than the willingness of representatives, from half a dozen states, to forego the inviting call of Labor Day in the interest of a movement which is of vital concern to the profession throughout the country.

If the new Society is fortunate enough to enlist the services of men who realize that recognition of the profession is paramount to individual honors, there is every reason to believe that the National Society of Professional Engineers will prosper and take its rightful place as the peer of the American Bar Association and the American Medical Association.

* * *

Engineers of the Next Generation

(Continued from Page 4)

has not seen the forest for the trees. The characteristics of engineering is the universal use of the engineering method. It is the common bond between engineers. Specialization consists only of the application of this method to certain specific types of problems. The history of engineering gives many examples of engineers of such superlative mentality that they were capable of using this method in many of, if not all, the different fields of engineering specialization. It is important that the engineering profession should act in a unified way, both as individuals and as differentiated groups. Differentiation into groups is purely a matter of convenience or a concession to limited mentality; certainly it is not at all fundamental. A comprehensive national organization of the engineering profession is not only possible but essential. Such an organization must exist and function effectively if the engineer and the engineering profession are to meet the demands of government, industry, and, in fact, social and economic progress in the immediate and distant future. The coming generation of engineers will call us remiss if they do not find such an organization ready to their hands.

Many practicing engineers are so busy with daily problems that they do not have time to mix with and obtain the views of those who shortly will

STATUS OF ENGINEERING IN CONNECTICUT
August—1934

Prepared for the Membership Committee of the National Society of Professional Engineers.

Societies

1. Connecticut Conference of Professional Engineers	60
2. American Society of Civil Engineers—Conn. Sec.	224
3. American Society of Mechanical Engineers—Conn. Sec.	614
4. American Institute of Electrical Engineers—Conn. Sec.	294
5. Connecticut Society of Civil Engineers	934
6. Engineers (estimated) (qualified for membership—not members of any Society)	300
Total	2426

Recapitulation

Classification	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	Total
Honorary					20		20
Fellows				4			4
Members	60	86	282	50	780		1258
Associate Members		78	158	240	134		610
Associates			27				27
Juniors		57	147				204
Affiliates		3					3
Engineers (unattached)						300 (Est.)	300 (Est.)
Totals	60	224	614	294	934	300	2426
Qualified for Membership in N.S.P.E.:							
Percentage	100	73	76	76	69	100	76
Number	60	164	467	223	644	300	1858

NOTE:—Organization plans about completed for creation of chapters in Bridgeport, New Haven and Hartford. Expect to have a membership of 1,000 by January 1st. Connecticut Society of Civil Engineers voted two to one in favor of Registration at their meeting held on August 7, 1934.

replace them. There has appeared recently a very marked change in the viewpoint of the younger men. They no longer are satisfied to enter an unorganized profession functioning only through a member of specialized national societies. They insist that the profession shall be organized in such a way that it can function as a unit in those maters having to do with its social and economic problems. Although history shows us that in many respects the ideas and ideals of youth become very similar to those of the older generation, as experience is acquired, it also shows that there are significant difference between generations. The recognition of the need for a comprehensive national organization appears to be one of the ideas that the younger generation will carry over with it.

Formation of E. C. P. D.

Recently there has been formed a joint body known as Engineers' Council for Professional Development. It was organized to fill the need for a joint engineering body that could represent the engineering profession properly and effectively with respect to certain types of problems and activities. Space does not permit detailing these causative phenomena, but 5 of the most outstanding ones are enumerated briefly.

1. There was, for example, the very insistent demand of the younger generation of engineers already mentioned.

2. There was a feeling on the part of certain farsighted men connected with the state licensing of engineers that the engineering profession could and should cooperate in the formulation of criteria and methods to be used by those licensing boards. These men, themselves engineers of attainment and with high ideals for the engineering profession, feared that state licensing boards and practicing engineers might not cooperate on problems demanding joint action for the good of the public and of the profession.

3. The third driving force was the realization by engineering educators of the significance of some of the powers that had been given state licensing boards. These boards, acting independently, were empowered to compile lists of accredited schools of engineering. Certain early attempts at such activities by some of the boards caused consternation among a few of our best known engineering educators.

4. Further, industry and the nation at large were recognizing more and more the need for the development of engineers who, while well trained technically, should also be more broadly educated so that they possessed knowledge and ability in other fields of human history and activity. The leaders in such thought recognized that the production of well rounded engineers would involve more than a mere college education, good as that might be made. They conceived the necessity for a nation-wide organization that could guide men in postgraduate self-education. They recognized the probability that in the course of time such broadening study might well become a prerequisite to acceptance into the profession as a fully competent engineer.

5. Finally, certain engineers prominent in the affairs of different engineering societies had become convinced that there existed a real need for a joint body to represent the engineering profession as a whole in matters having to do with the educational, legal, and professional aspects of the engineer's life.

The E. C. P. D. was formally organized by the American Society of Civil Engineers, American Institute of Electrical Engineers, The American Society of Mechanical Engineers, American Institute of Mining Engineers, American Institute of Chemical Engineers, Society for the Promotion of Engineering Education, and the National Council of State Board of Engineering Examiners.

Program and Activities of E. C. P. D.

This joint body consists of representatives named by the parent organizations. It has delegated powers only; that is, it is not authorized to act until instructed by the parent bodies. It constitutes an instrumentality through which the engineering profession, considered in its broadest aspect, not only may express its opinions and desires, but also may become effective in action. It gives the engineering profession a reason for uniting. It does not detract any powers from any existing organization; it does not propose to do so.

The immediate program of E. C. P. D. is briefly:

1. The proper selection and guidance of prospective engineering students.

2. Development and maintenance of proper and effective curriculums in schools of engineering.

3. Effective guidance in such postgraduate, self-education as is deemed necessary to produce a well rounded engineer. Incidentally, provision also is made for the guidance and assistance of those who desire to study engineering without attending a recognized school of engineering.

4. Cooperative agreement upon and enforcement of the degrees of achievement or accomplishment that should be attained by an individual as he mounts the rungs of the ladder leading to the status of a full fledged engineer.

In spite of the simplicity of these statements, and of the essential simplicity of the aims themselves, the actual conduct of the program is fraught with great difficulties. By no means the least springs from the individualistic characteristics of the engineer and of existing institutions. He and his institutions give ready lip service to the program that these institutions already have approved in a general sense, but the units of that program are not always considered as parts of a whole; they sometimes are considered only in their effect upon some conventional thought process or some existing way of doing things. This is but human and is to be expected. But, one might be sufficiently idealistic to hope that the engineer who prides himself on the recognition of fact and upon clear and impersonal thought could rise above such petty considerations to view matters of this sort in the light of the profession as a whole and of the advancement of the profession.

An example may serve to illustrate the sort of difficulty referred to. After lengthy and careful consideration E. C. P. D. decided to recommend that it be authorized to prepare and maintain a list of accredited engineering schools. This recommendation was made by duly accredited representatives from the professional engineering societies, from S. P. E. E. and from the national organization of state boards of engineering examiners so that all parties in interest are represented. The recommendation indicates it to be the considered judgment of these individuals that such a centralized and representative body as E. C. P. D. should accredit these schools. Now what happens when this recommendation is received by the parent bodies whose favorable action is required before any active work can be undertaken? Is there the universal recognition of fact to be expected from engineers and the consideration of the subject in the light of those facts and in a broad way? On the contrary we find in some cases a very human tendency to ignore the broader question and to concentrate upon details. The facts of the matter are that the state engineer licensing boards must prepare lists of accredited schools; the national organization of the members of these boards must prepare such a list. These men and the national socie' devoted to engineering education have said through E. C. P. D. to the engineers of the country. "Here is a task which merits the best judgment of all of us. We must have such lists. We would prefer that we arrive at them cooperatively. We invite your help." Would it not be most in the line of engineering thought to recognize that there is to be such accrediting and that it probably will be done best by cooperation?

No one really knows the best method to use in accrediting engineering curriculums, but the author maintains that discussion of the method to be used properly comes after a decision regarding the major proposition. Certain costs are involved, but this fact need not preclude the approval of the general principle subject to a later satisfactory solution of the problem of defraying those costs. Is not the question very simply this: If there must be accrediting, should engineers recognize the desirability of national accrediting by a most representative body, or should the matter drift until there are almost innumerable lists, differing widely among themselves and serving the individual purposes of small and disconnected bodies? There is but one answer: The engineer stands for organization properly set up and smoothly functioning. The alternative of favorable action in this case leads to the worst kind of disorganization or, at least, lack of organization.

Permanent Value of E. C. P. D.

The formation of E. C. P. D. is an almost spontaneous recognition of a radical change in the status of the engineering profession. It is the culmination of many more or less obscure movements which combined toward the formulation of a comprehen-

sive national organization of engineers representing the educational, legal, and professional, aspects of the engineer's life. Its formation does not represent a consciously planned march of an organized army across country. Instead it suggests the rather blind, instinctive concentration upon a central point by small groups coming from all possible directions. It is probable, therefore, that E. C. P. D., is not a temporary creation set up to meet a seeming need of the moment, but that it is in reality an instrument, still imperfect for meeting a real and permanent need of our social and economic structure. It is demanded by our social evolution. It might have been initiated differently; it might have been constituted differently; its program might have been worded differently; but it was inevitable.

The organizing of E. C. P. D. is the first step in preparing matters for the coming generation of engineers. The world is becoming conscious of the social and economic significance of engineering as never before. It is already demanding a greater responsibility on the part of the engineer for the changes that his works have brought about; and, in very plain language, it finds a dearth of engineers trained and experienced to carry the responsibilities that the world desires to place upon their shoulders. The engineering profession has arrived at the point corresponding to the place in the medical profession where the witch doctor is replaced by the student of anatomy, pathology, and drugs, but the stage of public health officers and of public sanitation has not yet been reached. Engineers can handle individual engineering problems, but are not prepared to accept their share of national responsibility in the further evolution of the social and economic structure that they are influencing more and more.

The writer does not refer to the depression out of which we appear to be emerging and to the cause thereof, but to a process that has been going on for several centuries and has been particularly active in the past half century. Lawyers, military men, and business men still are wrestling with problems that engineers have created. This is not because these men are preeminently fitted for such tasks. They themselves frequently admit this. They are required to carry a disproportionate share of the burden because hitherto the engineer has not deemed it necessary to prepare himself to share such burdens.

As a comprehensive national organization, E. C. P. D. represents a very reasonable starting point, and the governing bodies of its parent organizations should become thoroughly cognizant of its aims and activities. If these governing boards can do this, no essential difficulty will be placed in the way of carrying through this epoch-making movement.

* * *

Work Relief Plans

(*Continued from Page 5*)

date anyway. The unemployed are becoming increasingly restive, progressively more vocal and better organized. It is my personal opinion that we may soon find ourselves faced with a decision as to whether we shall provide work in some form, or provide the equivalent in cash allowances. This decision is probably much nearer than we know.

On the other hand, granted that we might through brute force and by reason of our position at the moment, go over to home relief program altogether. I dare say that the moral and physical decay of better than one half million families (approximately two and a half million souls, gentlemen) would be a sorry heritage for the responsible citizens and public officials five, ten, and twenty years hence.

If I am not badly mistaken, municipalities are sadly in need of sound public improvements. They are beginning to feel the lag brought about because of necessary but radical cuts in municipal appropriations. Our Administration has been repeatedly assured that there will be no lack of necessary and worthwhile local projects if the where-with-all is available to carry them out. This is the type of project which must provide work for relief recipients in the future. I believe that I state fairly work for relief recipients in the future. I believe that I state fairly the Temporary Emergency Relief Administration's position in this regard. If we continue work relief, we must provide real work on real projects.

Where is the money coming from? In the first place, we can and must arrive at a minimum guaranteed work relief program to carry over a set period of time, and be adequately covered for that period of time with funds to carry on regardless of what may happen to our relief rolls. We cannot expect our municipalities to plan and work constructively on a hand to mouth, month by month policy. We are all of us well convinced of this, I trust.

How far may municipalities participate financially? To some degree, I hope, but again, it is no secret that most of our cities are going to do well to finance municipal expenses whether current or accumulated. The two remaining sources of funds are obvious—State and Federal. I shall not presume to speak for my Administration in this regard. I think that it is obvious that the Federal Government is not losing sight of the problem of unemployment from a nation wide angle. Recent Federal legislation indicates that huge expenditures are to be made in an attempt to fill the gap caused by unemployment.

We experienced a daring and unplanned for program on the part of the Federal government this winter—the Civil Works Program. No one will gainsay its value in carrying us over what would otherwise have been the most miserable and disastrous winter this state or country has ever witnessed. The criticisms of that program were due mainly to its haste and its non-relief character.

The point I am leading up to is obvious. If Federal monies may be pooled with State and local monies, may it not be possible to carry out a form of decentralized public works on a relief basis to make it possible for every city and county to carry out well-planned projects over a stated period of time and to completion.

In other words, to establish a level of projects in every community, which level would guarantee in men and money, sound municipal projects of new and major construction. Such a program parallel to public works projects, but immediately possible to undertake under force account with relief labor.

My Administration is not in a position, until it has assurances from Washington, to propose this to you. I feel that I am safe in saying to you, however, that such is the hope and possibility. As preparation for this, we must arrive at the minimum program in men and in money. We must begin at once to plan and prepare sound, worthwhile projects, to be ready by the fall when such a program would logically go into effect.

If we are carrying out a relief program with relief monies, we cannot compromise on the question of relief. It is easy to let down the bars in this regard. To permit this will defeat our purposes and eventually bring work relief into disrepute as being too costly and not of much help in cutting down the costs of relief to the municipality. The Temporary Emergency Relief Administration will, therefore, continue to insist upon a rigid and thorough investigation of those who apply for relief, and the use of only those who qualify for relief. It will furthermore, cooperate with the governmental employment agencies to the end that those who qualify for relief shall be classified as to type of work they may do, to the end that projects will be better manned. Projects themselves will necessarily have to be such as to use available relief labor and must be efficiently carried out with a minimum of supervisory and technical personnel of a non-relief character.

To summarize it briefly, I would say work relief in the future will not compromise on the question of need It will be based upon a strict qualification for relief, but will insist upon standards of relief administration which are typified in adequacy of relief to the individual, administered economically and efficiently.

Subject to the will of our Legislature and the Governor, as well as upon our Chief Executive and representatives in Washington, the State Temporary Emergency Relief Administration will in the future throw its weight into a program of sound, constructive, worthwhile projects; the extent and scope of this program dependent upon funds available from local, state and federal governments. The State relief Administration's aim will be a work relief program which is relief, which is work, and which is of lasting value and use to the municipalities.

Such a program, is in the writer's opinion fully possible if city officials desire and believe in it.

* * *

Is Engineering Overcrowded?

(*Continued from Page 6*)

continually broadening. The whole electrical field has grown up from nothing in the last half century, the automobile field in the last third of a century and the airplane field in

twenty-five years. What is going to happen next is on the lap of the gods. One can only say that industrial research has been unusually active during these depression years. Air conditioning, the re-design not only of railroad rolling stock and automobile bodies but perhaps even of boats, marked advances in the aeronautical field, revolutionary new processes and products in metallurgy and in the heavy chemical industries, television, the mass production of housing, slum clearance and replanning of cities; all these and a host of other developments lie ahead. Any one of them may require hundreds of engineers of some new kind at any minute. How can so imaginative and constructive a profession be more than temporarily overcrowded?

Futhermore, it should be remembered that management and industrial engineering are historically children of mechanical engineering, that they are now well established fields in their own right and still growing rapidly and that an engineering training always has been, and still is, the best sort of background with which to enter upon these important and attractive careers. Many of the foremost industrial consultants of today are engineers. Already a considerable number of the major and minor executives of business and industry have been drawn from our profession, and there is every indication that the number will increase in the future. Indeed business and industry, as distinguished from the more professional and technical activities of a strictly engineering sort, already attract more than half of all the engineering graduates of the country, so that training for business and industry may almost be regarded as the major function of a school of engineering. It is for this reason that engineering schools all over the country have begun to lay such stress on economics in their curricula.

The broad field over which so many engineering graduates already are ranging in business and industry also explains why so many modern engineering schools are stressing a strong background of the humanities, particularly the important arts of written and oral expression; but also including literature, history, government and philosophy. As long as an engineer remains a mere technician, no matter how skillful or on how high a plane, he will never play the part in shaping the destinies of the community that his capacity and training indicate as his responsibilty. He must be as well educated as the lawyer, the doctor or the banker if he is to share with them the job of molding twentieth century civilization.

Scarcity of Engineers Predicted

Is, then, engineering overcrowded? I confidently answer "NO". Four years from now there won't be enough engineering graduates to meet even the technical demands of the profession to say nothing of all the other opportunities for constructive leadership that lie ahead. No profession can ever be overcrowded that is based on so happy a combination of idealism, imagination and rigidly sound straight thinking as that which characterizes engineering.

The American Civilization

(*Continued from Page* 7)

had the conditions been, as they have been here amongst us fortunate Americans?

I am not talking of material things alone, but of things that might be called spiritual. The living conditions that we enjoy and take for granted. Our wage standards; the food we eat; the clothing we wear; the automobiles we think are a necessity of life; our pleasures, and our recreations. For even in this depression with all of our grumbling, we have much more than other people have had even in their prosperity.

All of these achievements up to twenty years ago had led us to believe that we had set a standard, which in the generosity and idealism of American plenty we held out to the world as something that they too should strive for and build up to. We went into the Great World War to make the world safe for democracy. Look around us at the shattered wrecks of free Governments that survive.

Will you have Fascism, or Nazi-ism, which is deaf to human grief and pleading for individual liberty? These hark back centuries and steep themselves in race prejudice, social caste, and hatred of neighbors. Will you have Communism, with its dull, hopeless people whose individuality and initiative is dead? Whose people could not endure the living of today with its wretched herding, insufficient and polluted food, were it not for the hope instilled by false propaganda of "That the morrow will be better." Or, will you have Imperialism, such as that of Japan? One of whose statesmen recently said that our American high standard of living was a handicap and that in competition with the Japanese who are satisfied to sleep on the floor, eat sparingly of rice and fish, work every day for ten or twelve hours for a pittance, we Americans were unfortunate that we required beds, mattresses, bread and meat, and time for recreation, study and thought.

Is it not time that we seriously reflected on what our American ideals of social organization, our constitution, our laws, our customs, and traditions have brought to us? Is it wise to let the temporary and comparatively light burdens of this economic reaction sweep us off our feet, and offer "to trade our birthright for a mess of pottage?" What we have achieved and what we have established is not perfect. Nothing that man does, is, or ever will be perfect. There is a lot of room for improvement and the lessons of the last five years will help us to improve on what we have already gained. Experiment, if we must, yes, but never to the extent of abandoning or seriously endangering the principle upon which this nation grew to world leadership.

Do not misunderstand me as criticizing what has been attempted and done by the Administration. Considering the seemingly hopeless position we had come to over a year ago, our President deserves your appreciation and support, and the greatest credit for keeping the Ship of State on as even a keel as he has done. Torn between the obstinacy of our reactionaries, and the desperation of those who would throw everything overboard for radical experiment, he has been responsive to public opinion, a one hundred per cent American. He is responsive to public opinion. It is you Americans who must form that opinion and guide him.

There was a "forgotten man." He was the poor fellow hungry and out of a job, neglected, his mortgage foreclosed and his savings gone. There is a "forgotten man" today-the hard-working, industrious, frugal, American who saves a little for his old age, for the education of his children and saves so that perhaps there may be something for his wife and dear ones when he is called away. These savings he has invested in a home, in a farm, in an insurance policy, savings banks, or has bought stocks and bonds, which have not been wiped out as yet by bankruptcies. He is the owner of American wealth. He owns our railroads, our banks, our insurance companies, our corporations, and above all he pays the taxes, if not directly, then indirectly. He constitutes more than three quarters of American wage earners and has made and will again remake the prosperity and well being of this great and beloved country of ours. He will remain "the forgotten man" unless he gives thought and attention to vital national problems, and how his money that he has paid in taxes is to be spent. We have had enough of rule by coercion, by organized minorities. It is about time that the hard-working, saving, tax-paying American majority organize, get busy and assert themselves.

* * *

THE CODE FADES

(*Continued from Page* 8)

ful to the profession and to the public; and that most of those who have heretofore favored the code have done so only because they thought a code was inevitable and would be forced upon the profession."

There is reason to believe that a nationwide poll of those who are justified in terming themselves Engineers would substantiate the conclusions of the American Institute of Consulting Engineers so far as the necessity for coding is concerned. However, far more important than the action of any one Society, is the realization that arbitrary policies invariably lead to unsatisfactory results. The membership in any organization is entitled to a hearing and in the formulation of so important a regulatory document as a Code, expressions of opinion from within the ranks should have been taken by every participating group.

While subscribing to the contentions registered in the resolution above noted, one cannot fail to comment upon the fact that the most important of all Code objections has not been set forth, viz., the dividing up of the profession. If any Code is required, or if one could be used to advantage, it should be something applicable to all Engineers and not to employer or employee.

Any organization recognizing or attempting to set up distinctions or divi-

THE
TULANE UNIVERSITY
LIBRARY
NEW ORLEANS

sions within the ranks of a calling has no right to speak for or represent a profession; this applies equally as much to engineering as to law or medicine. What is desired is recognition for the Engineer as a professional man and not as an employer or employee.

The rules of fair dealing are as applicable to an employee as to an employer. Professional codes are based upon human relations and the obligations are binding only when supported by sound ethics. The recognition of castes or classes is as inimical to the development of engineering as a profession as the establishment of graded or divided Americanism would be to the fulfillment of the Destiny of this greatest of all Republics.

* * *

National Society Conference

(*Continued from Page 9*)

annum, one dollar of which shall shall be for subscription to the magazine to be published by the National Society and three dollars of which shall be for the activities of the National Society. These four dollars shall be collected by the County Chapters or State Societies along with the dues of the County Chapter and of the State Society. For members residing in States where Member State Societies have not yet been established, the dues shall be ten dollars per annum paid direct to the National Society of which sum six dollars shall be set aside in a special "Extension Fund" to be used by the National Society for the expenses of promoting licensing legislation and organizing State Societies in additional States.

State Autonomy—In all matters of state or local concern, the Member State Societies shall retain full autonomy, but may call upon the National Society for advice, counsel and assistance. The National Society may recommend state legislation and procedure in the interests of uniformity and efficiency, but action upon these recommendations shall be determined by the Member State Society.

Cooperation—The National Society shall cooperate with all national agencies having allied interests and shall give its assistance and support to such agencies as the National Council of State Boards of Engineering Examiners, the National Bureau of Engineering Registration, and the Engineers Council for Professional Development.—The activities of the National Society shall be restricted to the professional interests of the engineer, leaving all technical activities to the established technical societies. It shall be the aim of the National Society to promote unification of organizations and to discourage duplication of functions.

Reserve Funds—All divisions of the organization (national, state, and county) shall operate with maximum economy, and shall endeavor to build up reserve funds to be used only at critical periods for mutual assistance in carrying out the essential objectives of the organization.

Amendments—Amendments may be initiated by the Board of Directors or by any Member State Society. All amendments to become effective must receive a favorable vote of two-thirds of the votes cast by letter ballot.

No amendment affecting the autonomy of a State Society shall become valid without the consent of all Member State Societies.

NEW YORK EXAMINATIONS

(*Continued from Page 11*)

pounds per square inch. What horsepower is being developed at 500 revolutions per minute?

2 What weight can be lifted by a screw jack which has an efficiency of 30% and a pitch of ½ inch and is operated by a 50-pound force applied at the end of a 30-inch lever?

3 How far must a freely falling body fall to attain a velocity of 40 miles per hour?

4 Two pounds of a solution containing 25% of HCl are required to neutralize three pounds of a solution containing NaOH. What per cent of the latter solution is NaOH? (Atomic weights: H = 1, Cl = 35.5, Na = 23, O = 16)

5 An electric iron draws five amperes from a 120-volt line. What is the cost of running the iron for six hours at seven cents a kilowatt hour?

6 Two dry cells in series, each of 1.5 volts e. m. f. and 0.2 ohm internal resistance, send current through an external resistance of 2 ohms. How much current will flow? What is the voltage drop across the external resistance?

7 A gravity type concrete dam has a height of 30 feet, a top width of 6 feet and a bottom width of 24 feet. The upstream face is vertical. Calculate the unit pressures at the heel and toe when the reservoir is empty.

8 The diameter of the earth is 8,000 miles. How much weight does a 150-pound man standing at the equator lose because of centrifugal force.

9 A raft constructed of lumber weighing 42 pounds per cubic foot is awash under the weight of a 150-pound man. How many cubic feet of lumber are used in the raft?

10 A gas-engine cylinder is 6 inches in diameter when cold. What may be the maximum diameter of the piston when cold to prevent seizing when the piston is 700° F. hotter than the cylinder? (Linear coefficient of expansion is 0.0000065.)

11 Explain why a lake very seldom freezes solid.

12 Explain with the aid of sketches the terms *fold* and *fault* as used in geology.

Part I

MATERIALS OF CONSTRUCTION

Tuesday, June 26, 1934—9:15 a. m. to 12:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 State the approximate per cent of carbon that should be in a steel suitable for *each* of the following: (*a*) razor blade, (*b*) crosscut saw, (*c*) H-column in a building, (*d*) railroad rail, (*e*) boiler plate.

2 A railroad track is laid in winter at a temperature of 15° F., with gaps of 0.01 foot between the ends of the rails. The rails are 33 feet long. If they are prevented from buckling, what stress will result from a temperature of 110° F.?

3 *a* Name and describe briefly *two* important alloys that are much used for bearing metals.

b Why should a good bearing metal be made of hard and soft crystals?

4-5 A single-rivet lap joint has the following dimensions: plate thickness ½ inch, rivet pitch 2½ inches, diameter of rivet hole 1 1/16 inches. What is the allowable load on the repeating section of the joint if allowable stresses are as follows: tension 11,000 pounds per square inch, bearing 19,000 pounds per square inch, shear 8,800 pounds per square inch?

6 *a* Give with approximate proportions the principal chemical ingredients in alumina cements.

b Compare the properties and char-

Please Mail Promptly to P. O. Drawer 1404, Columbia, S. C.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Information to be furnished by prospective Member State Societies

Name of organization: .....

Date organized: .....

Grades of membership and number of members in good standing at present in each grade:

....

....

....

....

Total number of members (of all grades) in good standing At present: .....

Number of members in good standing who are legally licensed or registered professional engineers: .....

Qualification requirements for *Member* grade: .....

.....

.....

Name and address of President: .....

.....

Name and address of Secretary: .....

.....

Earliest date on which the State Society can take official action to approve the Constitution of the National Society and agree to become a Member State Society: .....

Date .....

Signed by .....

Official Position .....

Address .....

acteristics of alumina cements with those of Portland cement.

7-8 Determine the quantities *by weight* of cement, sand and broken stone required for a 2-cubic-yard batch of concrete (1:1½:3 mix), if 6 gallons of water per bag of cement are used. Make the following assumptions: 1 bag of cement = 1 cubic foot = 94 pounds; 1 cubic foot of sand = 105 pounds; 1 cubic foot of broken stone = 100 pounds; specific gravity of cement = 3.1; specific gravity of sand and of broken stone = 2.7.

9 *a* Describe the process of manufacture of hydrated lime.

b Compare and discuss the characteristics of a mortar made with quicklime and one made with hydrated lime.

10 *a* State *three* essential characteristics of good paving brick.

b State whether the following statement is true or false: "The manufacture of paving brick differs somewhat from that of common brick because the selection of a suitable clay is more limited." Give reasons for your answer.

11 A cypress block 1¾ inches square in cross section and 10 inches long was loaded on the end with 5,880 pounds. The shortening in a length of 6 inches was measured and found to be 0.0127 inch. What is the modulus of elasticity of this piece of cypress?

12 Assume that the qualities commonly required for road-building stone are (*a*) toughness, (*b*) resistance to wear or abrasion. (*c*) hardness. Describe the usual method of testing for *each* of these qualities.

Part I

STRUCTURAL PLANNING AND DESIGN

Tuesday, June 26, 1934—1:15 to 4:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer paper.

1 The main material of a plate girder consists of a web 42 inches by ⅜ inch, four angles 6 inches by 4 inches by ⅝ inch and four cover plates 14 inches by ½ inch. What total uniform load may be placed on this girder if the span is 30 feet?

2 In the girder described in question 1, what is the maximum permissible spacing of rivets in the vertical legs of the flange angles at a point where the total shear is 75,000 pounds?

3 Sketch a plan of the ground floor of a two-story suburban public school. Provide the following: four classrooms, supervisor's office, staff rest room, toilets, two stairways and two exits.

4 How shall a truck be placed on a 30-foot span to give the greatest bending moment? The loads are 5 tons on the front axle and 15 tons on the rear axle. The distance between axles is 14 feet.

5. Two ⅜-inch boiler plates are joined by ¾-inch rivets to form a lap joint. The rivets are placed in three rows, the pitch of the center row being 2½ inches and the pitch of the outer rows 5 inches. If the tension in the gross section of the plates is 4,000 pounds per inch of width, find the following unit stresses in the joint: (*a*) shear and bearing in the rivets, (*b*) tension in the net section of the plate at the outer row of rivets and at the center row of rivets.

6 A short 10-inch by 10-inch timber post is reinforced with two 9-inch by ½ inch steel plates thoroughly bolted to the post. What load may be placed on this post?

7 Describe briefly a method for determining the permissible load on a foundation pile.

8 Describe briefly *each* of the following methods of heating and state the advantages and disadvantages of each: hot air, steam, hot water.

9 A water supply pipe is 6 feet in diameter and built of longitudinal wood staves held by hoops of 1-inch round steel rod. What spacing of hoops is required when the pressure is 50 pounds per square inch?

10 A 24-inch, 100-pound standard I-beam carries a total uniform load of 5,000 pounds per linear foot. What is the deflection at the center?

11 A warehouse floor has a span of 14 feet. If the total load is 250 pounds per square foot, what spacing and size of wooden joists would you use?

12 A concrete beam 12 inches wide by 24 inches deep is reinforced with six ½-inch round rods placed 1¼ inches clear from the bottom. The maximum permissible unit stresses are 750 pounds per square inch in the concrete and 18,000 pounds per square inch in the steel; $n = 15$. What bending moment can this beam carry?

Part I

MECHANICAL DESIGN AND ELECTRICAL PRINCIPLES

Wednesday, June 27, 1934—9:15 a. m. to 12:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers. All work in the solution of problems must be submitted.

1 Give *three* different examples from practice where expansion of metals due to heat is important and is objectionable, and explain clearly with sketches the means by which the difficulties are obviated.

2 How would you determine experimentally the latent heat of steam at atmospheric pressure?

3 *a* What are the usual causes of the formation of smoke in the furnace of a boiler and how should the boiler be fired (by hand) to reduce the smoke to a minimum?

b If 25 pounds of air at 50° F. are supplied to a furnace per pound of coal burned and if the temperature of the flue gases is 580° F. and their specific heat is 0.24, calculate the approximate percentage of heat lost in the flue gases. (Neglect moisture; assume one pound of coal to yield 13,000 B. t. u.)

4 Describe briefly how you would conduct a boiler test to determine boiler efficiency. What special apparatus and instruments would you need and what data would you take?

5 A worm-driven hoist, with a double-threaded worm engaging a wheel having 79 teeth and a drum 12 inches in diameter, raises a concrete bucket weighing 5,000 pounds at the rate of 120 feet per minute. An electric motor drives the worm. The overall efficiency is 70%. Calculate (*a*) the torque on the motor shaft, (*b*) the horsepower at the motor shaft.

6 The suction gauge on a centrifugal pump reads 10 inches of mercury and the discharge gauge reads 20 pounds per square inch when discharging 250 gallons of water per minute. The suction pipe is 4 inches and the discharge pipe is 2 inches. Calculate the water horsepower delivered.

7 Give the general thermodynamic expression for the maximum possible thermal efficiency of a heat engine. With respect to *each* of the following, explain the direction in which it approaches this highest possible efficiency and the direction in which it is very efficient: (*a*) noncondensing steam engine, (*b*) internal-combustion engine, (*c*) complete modern steam power plant, (*d*) binary-vapor power plant.

8 How are the commercial sizes of the following articles specified: belting, chain, electrical conduit, electric conductors, expansion bolts, leather fillets (for patterns), machine chains, nails, railroad nails, rolled steel shapes, rope, shafting, sheet metal, split cotter, helical springs, taper pins, tapered pieces, tubing, washers, wire, wire cloth, wood screws, special articles?

9 Define or explain *six* of the following terms: power factor, synchronous condenser, magnetic reluctance, differential compound motor, resonant circuit, phase angle of condenser, compensating winding, thermoelectric power, polarization of a battery.

10 State on what factors *each* of the following depends and in what way it depends, whether directly, inversely, as the square, etc.: (*a*) the resistance of a conductor, (*b*) the reactance of a cable, (*c*) the capacity of a condenser, (*d*) the c. e. m. f. of a motor, (*e*) the voltage amplification factor of a vacuum tube.

11 *a* What is the effect of the speed on the cost of motors of the same capacity output?

b What are the general uses of *each* of the following types of motors: shunt, compound, series?;

c What are the *three* causes for voltage drop with load in the case of a d. c. shunt generator?

12 *a* What three conditions must the operator satisfy when synchronizing an alternator? Why must these conditions be satisfied and how does the operator know when they are met?

b A 100:1,000 volt step-up transformer is connected to one phase of a two-phase four-wire system, and a 100:2,000 volt step-up transformer is connected to the other phase of that system. Determine the magnitude and phase of the secondary electromotive force when the secondary coils are connected in series.

13 A three-phase, delta-connected induction motor operating on a 440-volt line has a power factor (lagging) of 0.85 and an efficiency of 0.80. It is delivering 10 horsepower. What is the line current and the current in the motor conductors?

14 If a direct-current motor takes an armature current of 140 amperes at full load and 220 volts, what resistance should its starting box have in order that the motor may start with full-load torque? The armature resistance of the motor is 0.05 ohm.

15 What inductance in millihenries should be connected in series with a 0.0005 mf. condenser in order that a current of 4 milliamperes may flow through the condenser when connected to a 40-volt, 50,000-cycle source of electricity? Neglect resistance.

Part I
ENGINEERING ECONOMICS AND PRACTICE

(Administration)

Wednesday, June 27, 1934—1:15 to 4:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1-2 A railroad company proposes to build a double-track, half-through plate-girder bridge, 980 feet in length. The number of spans will be either 8, 9, 10, 11 or 12, of equal length. The cost of steel in place is 10 cents per pound. If the cost of track is disregarded as constant, what is the economic length of span?

For determining the cost of steel, use the formula $W = 25S + 2050$, where W = weight of steel in pounds per linear foot and S = span length in feet. For determining the cost of the piers, use the formula $C = 30{,}000 + 50S$, where C = the cost in dollars of one pier and S = the span length in feet.

3 In the production of petroleum, the self-interest of each producer appears to require that wells should be drilled and pumped as rapidly as possible so that the pool will not be drained by wells on the land of his competitors. Discuss briefly this procedure from both an economic and a social standpoint, giving suggestions for a remedy, if such seems advisable.

4 Assume that the load factor is the ratio of the average load to the maximum load, taken for any desired period of time. Discuss briefly but concisely the significance and importance of the load factor in the design of (*a*) an electric utility plant, (*b*) a highway system, (*c*) a beet-sugar factory. (Take into consideration the fact that beets, when stored, lose sugar.)

5 On September 30, 1933, the debit balance of the power department expense account of a manufacturing company was $1897.05. Three-quarters of the power is used for operating shop machinery and the remainder is used for lighting, bulbs of equal capacity being equally spaced over the plant. The plant has an area of 100,000 square feet. The total number of horsepower hours used during the month is 150,000. Department B occupies 1200 square feet and its machines require 6500 horsepower hours per month. What will Department B be charged for (*a*) light, (*b*) power?

6-7 If a property has a first cost of $100,000 and a salvage value of $10,000 at the end of 25 years, find to the nearest $100 by the sinking-fund method of depreciation the appraised value of the property at the end of 5. 10, 15 and 20 years, assuming an interest rate of 4%.

8 As a professional engineer, you are asked by an owner to take charge of a piece of work in progress under contract. The professional engineer who previously designed and had charge of the work has terminated his connection with the owner because of disagreement concerning certain features of design and construction. What information, if any, concerning the business relationship between this engineer and the owner would you attempt to ascertain before taking charge of the work?

9 In the engineering profession, a retaining fee has been defined as "a payment at the commencement of a project to reserve the personal professional service; and it is always coupled with a basis of payment for the actual service thereafter rendered as well as for the overhead and expenses." State and discuss *two* instances of the typical use of this method of charging for professional engineering services.

10 Compare and discuss the backgrounds for the economic problems of engineers for telephone companies and engineers for manufacturers of radio sets.

11 The residential rate for electric energy is as follows: first 25 kwhr per month at 8 cents per kwhr; next 25 kwhr per month at 4 cents per kwhr; next 100 kwhr per month at 3 cents per kwhr; all additional electric energy per month at 2 cents per kwhr.

Assume that your present monthly use of electric energy for lights and miscellaneous appliances is about 60 kwhr. You are contemplating the purchase of an electric range that will use about 100 kwhr per month. For purposes of making a comparison of the economy of the electric range with that of some other type of stove, how much should you consider as its monthly cost for electric energy?

12 *a* Define the term *judgment factor* (sometimes called an "intangible") as applied to the problems of engineering economy.

b Give *three* general considerations that may be classed as judgment factors.

Part II
ELECTRICAL ENGINEERING

(First half)

Thursday, June 28, 1934—9:15 a. m. to 12:15 p. m. only

Answer any five of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

Return at 1:15 p. m. for the second half of this examination

1 A series circuit, of $R = 25$ ohms, $L = 0.08$ henry, and $C = 3.2$ microfarad, has impressed upon it a sinusoidal voltage whose effective value is always constant at 100 volts, but whose frequency is variable. At what frequencies will the power taken by the entire circuit be 150 watts? What frequency will produce the maximum voltage across L and what will this maximum voltage be?

2. A transmission line has a resistance of 14 ohms and a reactance of 18 ohms at 60 cycles. The station potential is 13,200 volts, and the load at the other end of the line takes 750 kw at a power factor of 0.85 lagging. Find the load current and the potential at the load. What is the efficiency of transmission?

3 From the general speed equation for direct-current motors indicate the various methods available for speed control of motors. By what *four* criterions should methods of speed control be judged?

4 Show how condensers are connected for improving power factor. It is desired to install a condenser to obtain 200 kva (leading) on a 600-volt system at a frequency of 50 cycles. If each element has a capacity of one microfarad, how many units will be needed?

5 *a* Show how a single-phase wattmeter can be used to measure the power in a three-phase mesh-connected balanced load when the neutral point of the system is not available.

b How is power measured on a three-phase four-wire system for the condition of unbalanced load?

6 Describe in detail the installation of switch gear followed in the largest capacity stations requiring the maximum of reliability.

7 Show how to arrange two windings on the rotor of a polyphase induction motor, to provide automatically for a large starting torque and also low rotor copper loss when running. This is the so-called "Line Start" motor. Explain the theory underlying this construction.

8 Examine critically the suitability of the various methods of adjusting or regulating the voltage on the direct-current side of a rotary converter.

9 *a* Give the theory of the open- and short-circuit method of testing a transformer and show how the data may be used to calculate the efficiency and voltage regulation for any specified secondary load.

b A 10-kw, 2000—100 volt transformer, tested as suggested above, at open circuit takes 200 watts at 0.7 power factor at normal voltage, and on short circuit takes 250 watts at 0.25 power factor. Calculate (1) efficiency at rated secondary current for 0.6 power factor, (2) voltage regulation for this load.

10 An audio-frequency amplifier is to have a gain of 60 db over an input of zero db level, and is to operate between 600-ohm circuits. Suggest tubes, transformers and grid biases to meet these requirements.

LICENSES GRANTED

June, 1934

Alexovits, Thos. M.
New York City.

Bowden, E. Warren
New York City.

Cooper, Henry
New York City.

Cuenot, Willener A.
Elizabeth, N. J.

Dana, Allston
New York City.

Droesch, Louis A.
Hollis, L. I.

Harrington, Carlos E.
Buffalo, N. Y.

Hennebique, Jules J.
New York City.

Toole, Ignatius V.
North Creek, N. Y

Hall, Emery
Bronx, N. Y.

Hallam, Thos. M.
New York City.

Herskowitz, Louis
Bronx, N. Y.

Hudson, Harold W.
New York City.

Wallace, Aaron V., Jr.
Goshen, N. Y.

Johnson, Eads
New York City.

Lanphear, Fred W.
Carthage, N. Y.

Major, Henry C.
Rockville Center, L. I.

Nowland, John W.
Utica, N. Y.

Wilson, Claude T.
Mt. Vernon, N. Y.

Piver, Angelo B
New York City.

Rogers, James E.
New Dorp, S. I.

Seely, Homer R.
Tenafly, N. J.

Stearns, Edward W.
S. Orange, N. J.

July, 1934

Beach, Foster J.
Port Dickinson, N. Y.

Bernstein, Joseph
New York, N. Y.

Birkahn, Jacques
New York, N. Y.

Blouch, Levi H.
Merchantville, N. J.

Bratton, Wm. C.
Mt. Vernon, N. Y.

*Brewster, Wm. R.
Oneonta, N. Y.

Carmel, Willard J.
Brooklyn, N. Y.

Canfield, Robert H.
Corning, N. Y.

Coe, Elbert H.
Warners, N. Y.

Collins, Alfred S.
Buffalo, N. Y.

Cresap, Logan
New York, N. Y.

DeWitt, Elmore J.
Middletown, N. Y.

*Eno, Chas. W.
Skaneatles, N. Y.

Friedman, Aaron
New York, N. Y.

Garner, Aubrey H.
New York, N. Y.

Granger, Armour T.
New York, N. Y.

Green, Chas. N.
New York, N. Y.

Hazard, Schuyler
Albion, N. Y.

Holmes, Frederick S.
New York, N. Y.

Hunt, Joseph L.
Bronx, N. Y.

Hubbell, John P.
New York, N. Y.

Jannsen, Ernest
Douglaston, L. I.

*Komito, Solomon
Brooklyn, N. Y.

Loftus, Peter F.
Pittsburgh, Pa.

Lynch, Frank J.
New York, N. Y.

Martin, Kingsley L.
New York, N. Y.

Melvin, Howard L.
New York, N. Y.

Meyerson, Jonas
Brooklyn, N. Y.

Moran, Harry P.
New York, N. Y.

Murray Patrick H.
New York, N. Y.

*Perry, Bernard F.
Rochester, N. Y.

Phillips, Everett A.
New York, N. Y.

Phillips, Howard H.
Syracuse, N. Y.

Reynders, John V.
New York, N. Y.

Ross, Chas. E.
New York, N. Y.

Schmitt, Frederick E.
Jackson Heights, L. I.

*Searles, James D.
Corinth, N. Y.

Skinner, Halcyon N.
Yonkers, N. Y.

Snyder, Hubert E.
Elmira, N. Y.

Stark, George H.
Syracuse, N. Y.

Tammen, Henry C.
New York, N. Y.

Taylor, Dean W.
Elmira, N. Y.

Walker, Chas. E.
Rochester, N. Y.

Wilmot, Sidney
New York, N. Y.

Wood, Melvin F.
Niagara Falls, N. Y.

Woolf, Edward L.
Ardsley, N. Y.

Wormser, Felix E.
New York, N. Y.

Zabel, Oscar E. F.
Rochester, N. Y.

* Land Surveyor only.

CHAPTERS

(Presidents Noted)

NEW YORK

ALBANY
Thomas A. Devane
44 Oakwood Ave.
Albany, N. Y.

BRONX
Joseph F. Lamb
1221 Shakespeare Ave.
Bronx, N. Y.

BROOME AREA
E. E. Stickney
R. D. 4
Binghamton, N. Y.

CHAUT.-CATTAR.
Walter F. Shaw
313 Wellman Bldg.
Jamestown, N. Y.

COLUMBIA
S. V. N. Rockefeller
Claverack, N. Y.

DUTCHESS
W. A. Schuerman
50 Market St.
Poughkeepsie, N. Y.

ERIE
T. N. McCormick
26 South Park Ave.
Buffalo, N. Y.

ESSEX
A. J. Keating
Elizabethtown, N. Y.

GENESEE
John C. Cowie
Caledonia, N. Y.

JEFF.-LEWIS
Edwin S. Cullings
Light & Power Bldg.
Watertown, N. Y.

KINGS
L. S. Stiles
176 Remsen Street
Brooklyn, N. Y.

MONROE
Charles W. Marvin
52 City Hall
Rochester, N. Y.

NASSAU
A. G. Archibald
189 Main St.
Hempstead, N. Y.

NEW YORK
Homer G. Balcom
10 E. 47th St.
New York, N. Y.

NIAGARA
A. L. Williams
709 Cedar Avenue
Niagara Falls, N. Y.

ONEIDA
Leonard D. Brownell
109 No. Genessee St.
Utica, N. Y.

ONONDAGA
Harold J. Dawson
231 Union Bldg.,
Syracuse, N. Y.

ORANGE
Peter H. Bush
Monroe, N. Y.

QUEENS
A. K. Johnson
68 Hunterspoint Ave.
L. I. City, N. Y.

RENSSELAER
C. L. J. Ager, Jr.
119 Maple Ave.
Troy, N. Y.

RICHMOND
F. H. Zurmuhlen
205 E. 42 St.
New York, N. Y.

ROCKLAND
Anthony B. Chester
Tomkins Cove, N. Y.

ST. LAWRENCE-CLINT.-FRANK.
A. E. Bartlett
810 Green St.
Ogdensburg, N. Y.

SCHENECTADY
Warren C. Taylor
38 Union Avenue
Schenectady, N. Y.

STEUBEN AREA
S. B. Ehrenrich
50 Kansas Ave.
Hornell, N. Y.

SUFFOLK
Fred J. Biele
184 Nassau Ave.
Huntington, N. Y.

ULSTER
George W. Codwise
277 Fair Street
Kingston, N. Y.

WARREN & WASH.
Louis E. Courchaine
75 Glen Street
Glens Falls, N. Y.

WESTCHESTER
John Avery
57 Douglas Avenue
Yonkers, N. Y.

NEW JERSEY

ESSEX
Edward S. Rankin
City Hall
Newark, N. J.

UNION
George F. Rich
Watson & Russel Rds.
Fanwood, N. J.

PASSAIC
Ernest F. Weeks
200 E. Fifth Street
Paterson, N. J.

HUDSON
Peter F. Daly
730 Hudson Place
Paterson, N. J.

BERGEN

MIDDLESEX
Louis P. Booz
238 Madison Avenue
Perth Amboy, N. J.

MORRIS
N. C. Harrison
High Street
Butler, N. J.

MONMOUTH
Chester A. Slocum
28 Sixth Avenue
Long Branch, N. J.

WEST JERSEY
Perley E. Boomer
Edsall Road
Hopatcong, N. J.

SOUTH JERSEY
Beale M. Schmucker
Court House
Camden, N. J.

DIRECTORY OF LICENSED PROFESSIONAL ENGINEERS

NEW YORK CITY

STILLMAN & VAN SICLEN
Inc.
Chemical and Testing Engineers
"Tests and Analyses of Paving and Building Materials, Asphalt, Cement, Concrete, Road Oils, etc. Investigations, Reports and Inspection Service. Core Borings."
254 W. 31st St., New York City
I. Hochstadter, L. P. E. No. 2017
F. Moller, " No. 9672
S. Newmark, " No. 9769
K. M. Hersten, " No. 9723

ROBINSON & STEINMAN
Consulting Engineers
H. D. ROBINSON
D. B. STEINMAN
Bridges:
Design, Construction, Strengthening, Investigations, Reports, Advisory Service
117 Liberty St., New York City

NEW YORK CITY

Holst, J. L.
Consulting Engineer
Investigations, Reports, Design, Specifications, and Supervision of Construction of Buildings, Bridges, Tunnels, and Marine Structures.
New York City,
420 Lexington Avenue

FRED'K H. ZURMUHLEN, C. E.
Consulting Engineer
Building Design and Construction
205 E. 42d St., New York City

WALTER V. READ
ENGINEER AND CONSULTANT
On Electrolysis and General Corrosion Problems.
11 Park Place,
New York, N. Y.
Tel.: BArclay 7-0072

CLYDE R. PLACE
CONSULTING ENGINEER
Graybar Building
Grand Central Terminal
New York City

WHITE PLAINS

THE HALLER TESTING LABORATORIES, Inc.
121 Westmoreland Ave.
White Plains, N. Y.
Engineers — Chemists
Inspectors
MR. E. A. ROBINSON
9242 P. E. L. S.

PELHAM

Gordon E. Ferguson
Licensed Professional Engineer
INVESTIGATIONS
VALUATIONS
11 5h Ave., Pelham, N. Y.
Pelham 0665

POUGHKEEPSIE

FRANK S. HOPKINS
Civil Engineer & Surveyor
20 Cannon Street,
Poughkeepsie, N. Y.
Phone 4350

STATEN ISLAND

North, Allison & Ettlinger
Civil Engineers and Surveyors
36 Richmond Terrace,
Staten Island, N. Y.
Phone: St. George 7-0436

H. W. ORDEMAN
Consulting Engineer
Water Front and Industrial Investigations, Legal Testimony
82 Harbor View Place
Rosebank, S. I., N. Y.

NEW ROCHELLE

R. J. VAN WAGNER,
INCOPORATED
Engineers and Contractors
150 Trenor Drive
New Rochelle
New Rochelle 4572

PLEASE NOTE:

Attention--

Engineers in Private Practice

"The American Engineer" is setting a precedent in Professional Directory.

In keeping with the spirit and principles of The New York State Society and The New Jersey Association of Professional Engineers we are building a Professional Directory for Licensed Professional Engineers and Licensed Land Surveyors.

This is the only Directory in which a License is compulsory.

Every member in private practice should cooperate in making this Directory both comprehensive, representative and useful. Will you?

Members of The New Jersey State Association are urged to send in their listing. The charge is nominal.

Just out for a little air ... but he's learned that

IT PAYS TO PAVE WITH CONCRETE

MOSEYING along under bright stars of a summer night or swinging across country on a sunny Sunday . . . all America takes to the road when the outdoors calls. People aren't thinking of driving costs when they're out for fun, but they're glad just the same when they can save money.

And save they do when they drive on concrete. They burn less gas . . . oil goes farther . . . tires last longer . . . repairs are lower.

Actual tests have shown that you can save up to 2 cents a mile on concrete as compared with driving costs on lower types of roads. It's enough to pay your gas taxes and pay you $100 profit each year besides.

Write for the free booklet, "If Your Car Had Wings." It will tell you some startling facts about the roads you drive on—what they mean to your car and your pocketbook.

85c to 90c of the concrete dollar goes to labor

PORTLAND CEMENT ASSOCIATION
347 MADISON AVENUE NEW YORK CITY

GET THIS FREE BOOK ON PLANFILING

It tells about the modern, time and space-saving method of handling engineering drawings—at a lower cost per drawing.

A large engineering department reports these advantages:

a—A gain of 50% in storage capacity of floor space.

b—ready access to all drawings.

c—No step ladders needed.

d—Drawings held perfectly flat and kept in better condition.

e—Protection against fire and water damage.

This book, offered to all engineers without obligation, tells how to get these and other advantages in the filing of tracings, blueprints and drawings in any size from 9x7 to 48x36 inches. Ask for Booklet 63 on your letterhead.

Art Metal
STEEL OFFICE EQUIPMENT

ART METAL CONSTRUCTION CO.
ENGINEERING SERVICE DEPT., JAMESTOWN, N. Y.

TRANSITS — LEVELS

PLUMB BOBS

RODS — — TAPES

DRAWING INSTRUMENTS

TABLES — — FILES

BLUE PRINTS

Serving The Engineer Since 1885

KOLESCH & CO.

138 FULTON STREET NEW YORK